TERREBONNE PARISH
CONSOLIDATED GOVERNMENT
P.O. BOX 2768 • HOUMA, LOUISIANA 70361
985-868-5050 • WWW.TPCG.ORG

Notice to Proposers

Sealed proposals will be opened **October 31, 2023** at the Terrebonne Parish Consolidated Government (TPCG) Purchasing Division at 301 Plant Road Houma, LA 70363 at 2:00 P.M. CST as shown on the Purchasing Division Conference Room Clock for the following:

Request for Proposals (RFP) 23-FIRE-75 Purchase of One (1) New/Unused 75' Aerial Ladder Fire Apparatus with Pump

Each proposal shall be either hand delivered by the Proposer or his agent in which instance the deliverer shall be handed a written receipt, or such proposal shall be sent by **United States Postal Service registered or certified mail with a return receipt requested**. Proposals shall not be accepted or taken, including receiving any hand delivered proposals, on days which recognized as holidays by the United States Postal Service.

A non-mandatory pre-proposal conference will be held In the Purchasing Division at 301 Plant Road Houma, LA 70363 on October 18, 2023 at 2:00 P.M. CST.

Information pertaining to the proposal forms and specifications may be obtained by contacting Gina Bergeron at (985) 580-7272 or gbergeron@tpcg.org. The RFP is available in electronic form on the TPCG website http://www.tpcg.org/bids and is also posted on www.centralauctionhouse.com. To view, download, and receive proposal notices by email, you must register with Central Auction House (CAH). If you have any questions about the CAH process, contact Bobby Calendar at 1-225-810-4814.

The proposal shall be accompanied by a surety in the amount of ten percent (10%) of the proposed price. Make the surety payable to the Terrebonne Parish Consolidated Government in the form of a Certified Check, Cashier's Check or Bond. Failure to include the 10% surety will result in the proposal being declared nonresponsive and shall be cause for rejection.

No proposals will be received after the date and hour specified. The Terrebonne Parish Consolidated Government reserves the right to reject any and all proposals and to waive any informalities.

/s/ Gordon E. Dove
Gordon E. Dove, Parish President
Terrebonne Parish Consolidated Government

Publish: October 6th, 13th & 20th
To Courier: October 3, 2023

INSTRUCTIONS TO PROPOSER

RFP 23-FIRE-75 Purchase of One (1) New/Unused 75' Aerial Ladder Fire Apparatus with Pump

Please Read Carefully

Part 1. GENERAL: The Terrebonne Parish Consolidated Government (TPCG) seeks to obtain proposals from qualified companies for the furnishing and delivery of a complete Aerial Ladder Fire Apparatus equipped, constructed, and tested as specified hereafter for service at the Houma Fire Department.

1.1 Schedule of Events	**DATE**	**TIME**
1.1.1. RFP posted to TPCG website and blackout period begins	October 6, 2023	4:00 P.M. CST
1.1.2. Deadline to receive written inquires	October 16, 2023	10:00 A.M. CST
1.1.3. Deadline to answer written questions	October 20, 2023	2:00 P.M. CST
1.1.4. Proposal Opening Date	October 31, 2023	2:00 P.M. CST
1.1.5. Oral discussions with Proposer, if applicable	TBD	
1.1.6. Notice of Intent to Award to be mailed	TBD	
1.1.7. Contract Initiation	TBD	

NOTE: The TPCG reserves the right to revise this schedule. Revisions before the Proposal Submission Deadline, if any, will be formalized by the issuance of an addendum to the RFP. Revisions after the Proposal Submission Deadline, if any, will be by written notification to the eligible Proposers.

1.2 Vendor Registration

The Terrebonne Parish Consolidated Government Purchasing Division requires vendors to register online at https://secure.tpcg.org/vendor/ **.** This tool is part of our efforts to make it easier for you to do business with the Parish, as well as provide you with better business opportunities. If you have already taken action to complete this requirement, you do not have to complete this process again. However, if you have not already registered online as a vendor you will need to do so within ten (10) days' notice of award of this bid.

Part 2. ADMINISTRATIVE:

2.1. Proposal Submittal

2.1.1. This RFP is available in electronic form at the TPCG website http://www.tpcg.org/index.php?f=purchasing&p=bid_opportunities. It will be available in PDF format or in printed form by submitting a written request to Gina Bergeron Procurement Specialist III at gbergeron@tpcg.org

2.1.2. It is the Proposer's responsibility to check the TPCG's website frequently for any possible addenda that may be issued. The TPCG is not responsible for a Proposer's failure to download any addenda documents required to complete a Request for Proposal.

2.1.3. All proposals shall be received in hard copy (printed) form by the Terrebonne Parish Consolidated Government Purchasing Division no later than the date and time shown in the Invitation to Proposers. Fax or email submissions are not acceptable.

2.1.4. The submittal envelope/box/package must be clearly marked on the exterior with the following information and in the following format:

- Proposal Name: RFP 23-FIRE-75 Purchase of One (1) New/Unused 75' Aerial Ladder Fire Apparatus with Pump
- Proposal Opening Date: October 31, 2023
- Company Name & Address

2.1.5. Each proposal shall be either hand delivered by the Proposer or his agent in which instance the deliverer shall be handed a written receipt, or such proposal shall be sent by United States Postal Service registered or certified mail with a return receipt requested. Proposals shall not be accepted or taken, including receiving any hand delivered proposals, on days which recognized as holidays by the United States Postal Service.

Proposals should be mailed to the location below:

Terrebonne Parish Consolidated Government
Purchasing Division
301 Plant Road
Houma, Louisiana 70363

The proposer is solely responsible for the timely delivery of its proposal. Failure to meet the proposal opening date and time shall result in rejection of the proposal.

2.1.6. PROPOSALS SHALL BE OPENED PUBLICLY AT THE PHYSICAL LOCATION IDENTIFIED ABOVE AND ONLY THE NAME OF THE PROPOSERS SUBMITTING PROPOSALS SHALL BE IDENTIFIED ALOUD. NO OTHER INFORMATION CONTAINED IN THE PROPOSAL SHALL BE RELEASED OR DISCLOSED

2.1.7. Respondents shall submit only one proposal which meets or exceeds the specifications. Proposals which option price or omit items required by the specifications in order to appear low proposal may be rejected without

consideration. Proposals on alternate, stock or demonstrator units are not being solicited. Any such proposals shall not be considered. Proposals will not be considered from firms, individuals or the same owners of separate companies submitting more than one proposal.

2.2. Proposal Response Content

2.2.1. To standardize and simplify the evaluation of responses, proposals should contain all of the following information and be organized in the sequence indicated below. All of the sections should be appropriately labeled and bound together under a single cover not to exceed two (2) volumes with any identified appendices included as a separate volume.

2.2.1.1. Cover Letter: A cover letter should be submitted on the Proposer's official business letterhead and generally exhibit the Proposer's understanding and approach to the requested Fire Apparatus specified herein. It should contain a summary of the Proposer's ability to provide the Fire Apparatus. The cover letter should also identify the person(s) authorized by the Proposer to contractually obligate the Proposer and the person(s) who will address technical and contractual matters throughout the evaluation period. By signing the cover letter and the proposal, the Proposer certifies compliance with the signature authority required below.

2.2.1.2. **Signatory Authority** (Required by all Proposers) Written evidence of the authority of the person signing the proposal shall be submitted at the time of the proposal. The authority of the signature of the person submitting the proposal shall be deemed sufficient and acceptable if any of the following conditions are met:

2.2.1.2.1. The signature on the proposal is that of any corporate officer listed on the most current annual report on file with the secretary of state, or the signature on the proposal is that of any member of a partnership, limited liability company, limited liability partnership, or other legal entity listed in the most current business records on file with the secretary of state.

2.2.1.2.2. The signature on the proposal is that of an authorized representative as documented by the legal entity certifying the authority of the person.

2.1.1.2.3. The legal entity has filed in the appropriate records of the secretary of state of this state, an affidavit, resolution, or other acknowledged or authentic document indicating the names of all parties authorized to submit proposals and bind the public entity for public contracts. Such document on file with the secretary of state shall remain in effect and shall be binding upon the principal until specifically rescinded and canceled from the records of the office.

2.2.3. Company Description and Experience: Provide a description of the Respondent's company including the number of years under present company name, number of employees directly involved with this RFP and capabilities of each. If the respondent has an office in Louisiana, provide the address and the number of full-time employees at said location.

2.2.4. Business Structure: Describe the business structure under which the Respondent operates (i.e., corporation, partnership, Limited Liability Company, etc.) and under which state laws it is organized as a business entity.

2.2.5. Understanding & Approach: This section should demonstrate that the Respondent understands the needs of the TPCG Houma Fire Department with respect to the specifications described herein. Respondent should

include a description of the anticipated approach including technical and management factors that will result in successful execution of the specification for the production of the Aerial Fire Apparatus. Advantages or special capabilities of the actual team the Respondent is submitting for consideration should be highlighted in this section as well as the intended methods to ensure:

- Effective management
- Timeliness of work
- Effective quality control
- Effective communication protocol
- Any other factors that demonstrate the Respondent's unique capabilities and experience to ensure the successful execution of the specifications herein

2.2.5.1. Respondents are encouraged to provide examples of innovative and creative approaches unique to their production process and those they have found successful and have employed in the past.

2.2.6. Available Resources: Respondent should provide a statement of availability of personnel, the ability to provide additional staff as the need arises to ensure completion of Fire Apparatus specified be delivered within the promised time frame.

2.2.7. Reference Facilities: Respondents should provide at least three (3) references demonstrating the successful implementation of proposed production of similar scope. These references should have been for the production of similar units within the past five (5) years from the date of this RFP. For each reference the Respondent should provide a brief description of the services/products provided, dates of contract start and completion, and contact information for the client for whom the work was completed.

2.2.8. Conflict of Interest Disclosure: All Respondents providing a response to this RFP shall provide a clear and unambiguous indication of any potential or real conflicts of interest it may have with respect to performing work on behalf of TPCG. The TPCG shall make the final determination as to whether any potential or real conflict of interest exists.

2.2.9. Price Proposal: Respondents price proposal shall be submitted on "Official Proposal Form." Partial proposals, proposals not covered by forms or alternate proposals, will not be considered. Any such unsolicited proposals may expose the submitted price in the event that all Proposals are rejected and that new specifications are advertised which may include a new proposal.

2.3. Number of Response Copies

2.3.1. Each Proposer shall submit one (1) bound signed original response. Each proposer shall also submit two (2) bound additional copies and one (1) electronic copy in PDF format as well as one (1) bound redacted copy, if applicable. The redacted version, if applicable, can be included on the same device as the electronic copy.

2.4. Legibility / Clarity

2.4.1.1 Responses to the requirements of this RFP in the formats requested are desirable with all questions answered in as much detail as practicable. The Proposer's response is to demonstrate an understanding of the requirements. Proposals prepared simply and economically, providing a straightforward, concise description of

the Proposer's ability to meet the requirements of the RFP is desired. Each Proposer is solely responsible for the accuracy and completeness of its proposal.

2.5. Confidential Information, Trade Secrets, and Propriety Information

2.5.1. For the purposes of this procurement, the provisions of the Louisiana Public Records Act (La. R.S. 44.1 et. Seq.) will be in effect. Pursuant to this Act, all proceedings, records, contracts, and other public documents relating to this procurement shall be open to public inspection. Proposers are reminded that while trade secrets and other proprietary information they submit in conjunction with this procurement may not be subject to public disclosure, protections must be claimed by the Proposer at the time of submission of its Technical Proposal. Proposers should refer to the Louisiana Public Records Act for further clarification.

2.5.2. The designation of certain information as trade secrets and/or privileged or confidential proprietary information shall only apply to the technical portion of the proposal. The cost proposal will not be considered confidential under any circumstances. Any proposal copyrighted or marked as confidential or proprietary in its entirety may be rejected without further consideration or recourse.

2.5.3. Proposers must be prepared to defend the reasons why the material should be held confidential. If a competing Proposer or other person seeks review or copies of another Proposer's confidential data, the TPCG will notify the owner of the asserted data of the request. If the owner of the asserted data does not want the information disclosed, it must agree to indemnify the TPCG and hold the TPCG harmless against all actions or court proceedings that may ensue (including attorney's fees), which seek to order the TPCG to disclose the information. If the owner of the asserted data refuses to indemnify and hold the TPCG harmless, the TPCG may disclose the information.

2.5.4. The TPCG reserves the right to make any proposal, including proprietary information contained therein, available to TPCG personnel or organizations for the sole purpose of assisting the TPCG in its evaluation of the proposal. The TPCG shall require said individuals to protect the confidentiality of any specifically identified proprietary information or privileged business information obtained as a result of their participation.

2.5.5. Additionally, any proposal that fails to follow this section and/or La. R.S. 44:3.2.(D)(1) shall have failed to properly assert the designation of trade secrets and/or privileged or confidential proprietary information and the information may be considered public records.

2.5.6. If your proposal contains confidential information, you should submit a redacted copy along with your proposal. If you do not submit the redacted copy, your proposal shall be considered public record. When submitting your redacted copy, you should clearly mark the cover as such – "REDACTED COPY" – to avoid having this copy reviewed by an evaluation committee member. The redacted copy should also state which sections or information have been removed.

2.6. Proposal Inquiry Periods

2.6.1. The TPCG shall not and cannot permit an open-ended inquiry period, as this creates an unwarranted delay in the procurement cycle and operations of our agency customers. The TPCG reasonably expects and requires responsible and interested Proposers to conduct their in-depth proposal review and submit inquiries in a timely manner.

2.6.2. An inquiry period is hereby firmly set for all interested Proposers to perform a detailed review of the proposal documents and to submit any written inquiries relative thereto. Without exception, all inquiries MUST be submitted in writing by an authorized representative of the Proposer and clearly cross-referenced to the relevant solicitation section. All inquiries must be received by the Inquiry Deadline date set forth in Section Schedule of Events of this RFP. Only those inquiries received by the established deadline shall be considered by TPCG. Inquiries received after the established deadline shall not be entertained.

2.6.3. Inquiries concerning this solicitation should be delivered to the TPCG's contact person for this solicitation as shown below. Only the person(s) identified hereafter, or their designee has the authority to officially respond to Proposer's questions on behalf of the TPCG, including during the Blackout Period. Any communications from any other individuals are not binding to the TPCG.

Administrative Inquires:
TPCG Purchasing Division
Attention: Gina Bergeron
301 Plant Road
Houma, LA 70363
E-Mail: gbergeron@tpcg.org
Phone: 985-580-7272/Fax: 985-873-6766

Technical Inquiries:
TPCG Purchasing Division
Attention: Gina Bergeron
301 Plant Road
Houma, LA 70363
E-Mail: gbergeron@tpcg.org
Phone: 985-580-7272 Fax: 985-873-6766

Only the person identified above, or their designee has the authority to officially respond to Proposer's questions on behalf of the TPCG, including during the Blackout Period. Any communications from any other individuals are not binding to the TPCG.

2.6.4. An addendum will be issued and posted at the TPCG website and Central Auction House site, to address all inquiries received and any other changes or clarifications to the solicitation. Thereafter, all proposal documents, including but not limited to the specifications, terms, conditions, plans, etc., will stand as written and/or amended by any addendum. No negotiations, decisions, or actions shall be executed by any Proposer as a result of any oral discussions with any TPCG employee. It is the Proposer's responsibility to check the TPCG website and/or Central Auction House site frequently for any possible addenda that may be issued. The TPCG is not responsible for a Proposer's failure to download any addenda documents required to complete a Request for Proposal.

2.6.5. Blackout Period the Blackout Period is a specified period of time during a competitive sealed procurement process in which any Proposer, or its Agent or Representative, is prohibited from communicating with any Parish employee or Contractor of the Parish involved in any step in the procurement process about the affected procurement. The Blackout Period applies not only to Parish employees, but also to any Contractor of the Parish. "Involvement" in the procurement process includes but may not be limited to project management, design, development, implementation, procurement management, development of specifications, and evaluation of proposals for a particular procurement. All solicitations for competitive sealed procurements will identify a designated contact person, as per Section 2.6.3. of this RFP.

2.6.5.1. All communications to and from potential Proposers, Vendors and/or their representatives during the Blackout Period must be in accordance with this solicitation's defined method of communication with the designated contact person. The Blackout Period will begin upon posting of the solicitation. The Blackout Period will end when the contract is awarded.

2.6.5.2. In those instances, in which a prospective Proposer is also an incumbent Contractor, the TPCG and the incumbent Contractor may contact each other with respect to the existing contract only. Under no circumstances may the TPCG and the incumbent Contractor and/or its representative(s) discuss the blacked-out procurement.

2.6.5.3. Any Proposer, or Contractor who violates the Blackout Period may be liable to the TPCG in damages and/or subject to any other remedy allowed by law. Further, failure to comply with these requirements may result in the Proposal's disqualification. Any costs associated with cancellation or termination will be the responsibility of the Proposer.

2.6.5.4 Notwithstanding the foregoing, the Blackout Period shall not apply to:

- A protest to a solicitation submitted pursuant to TPCG Protest Policy;
- Duly noticed site visits and/or conferences for Proposers;
- Oral presentations during the evaluation process

2.6.5.5. Communications regarding a particular solicitation between any person and staff of the procuring agency provided the communication is limited strictly to matters of procedure. Procedural matters include deadlines for decisions or submission of proposals and the proper means of communicating regarding the procurement but shall not include any substantive matter related to the particular procurement or requirements of the RFP.

2.7. Protest

2.7.1 Any person aggrieved in connection with the solicitation, or the specifications contained therein, has the right to protest. Such a protest shall be made in writing to the Purchasing Manager at least two (2) days prior to the deadline for submitting proposals.

2.7.2. Any person aggrieved by the proposed award has the right to submit a protest in writing, in accordance with the TPCG Protest Policy, to the Purchasing Manager, within seventy-two (72) consecutive hours (excluding Saturdays, Sundays and legal holidays) from the time of being notified of the intended award.

2.8. Debriefings

2.8.1. Debriefings may be scheduled by the participating Proposers after the "Notice of Intent to Award" letter has been issued by scheduling an appointment with the Sharon Ellis, Purchasing/Warehouse Manager. Contact may be made by phone at (985) 873-6821 or E-mail to sellis@tpcg.org.

2.9. Proposal Rejection

2.9.1. Issuance of this RFP in no way constitutes a commitment by the TPCG to award a contract. The TPCG reserves the right to accept or reject any or all proposals submitted or to cancel this RFP if it is in the best interest of the TPCG to do so. Further, the TPCG reserves the right to cancel or decline to enter into a

contract with the successful Proposer at any time after the award is made and before the contract receives final approval from the Parish Administration and the Terrebonne Parish Council.

2.9.2. In accordance with the provisions of La. R.S. 39:2192, is authorized to reject a proposal from, or not award the contract to, a business in which any individual with an ownership interest of five percent or more, has been convicted of, or has entered a plea of guilty or nolo contendere to any state felony or equivalent federal felony crime committed in the solicitation or execution of a contract awarded under the laws governing public contracts under the provisions of Chapter 10 of Title 38 of the Louisiana Revised Statutes of 1950, or the Louisiana Procurement Code under the provisions of Chapter 17 of Title 39.

2.9.3. In accordance with Louisiana law, all corporations (see, La. R.S. 12:163) and limited liability companies (see, La. R.S. 12:1308.2) must be in good standing with the Louisiana Secretary of State in order to hold a contract with the TPCG.

2.10. Material in the RFP

2.10.1. Proposals should be based on the material contained in this RFP. The RFP includes official responses to questions, addenda, and other material, which may be provided by the TPCG pursuant to the RFP.

2.11. Surety/Performance Bond/Taxes:

2.11.1. The proposal shall be accompanied by a surety in the amount of ten percent (10%) of the proposed price. Make payable to the Terrebonne Parish Consolidated Government in the form of a Certified Check, Cashier's Check or Bond. Failure to include the 10% surety will result in the proposal being declared nonresponsive and shall be cause for rejection. Bonds must be signed by an officer of the proposer's company. The surety of all proposers will be returned after the successful proposer has executed the contract.

2.11.2. The successful proposer will have ten (10) days from the "Notice of Award", or the date indicated within, to supply the TPCG with a Performance Bond in the amount of 100% of the proposed price. This bond shall remain in effect at least until one year after the date of final payment, except as otherwise provided by Law or Regulation or by the Contract Documents. The contractor shall also furnish such other Bonds when required by the Supplementary Conditions. All Bonds shall be in the forms prescribed by Law or Regulation or by the Contract Documents and be executed by such Sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. A certified copy of the authority to act must accompany all Bonds signed by an agent. All bonds prescribed by the contract documents shall be written by a surety company currently possessing an A.M. Best's rating of no less than A- and currently licensed to do business in the State of Louisiana. In addition, all insurance prescribed by the contract documents shall be written by an insurance company currently possessing an A.M. Best's rating of no less than A: VI and currently licensed to do business in the State of Louisiana

2.11.3. Any taxes, other than State and local sales and uses taxes, from which the TPCG is exempt, shall be assumed to be included within the Proposer's cost.

2.12. Errors and Omissions in Proposal

2.12.1. The TPCG will not be liable for any errors or omissions in the proposal. Proposer will not be allowed to alter proposal documents after the deadline for proposal submission, except under the following condition: The TPCG reserves the right to make corrections or clarifications due to patent errors identified in proposals by the TPCG or the Proposer. The TPCG, at its option, has the right to request clarification or additional information from the Proposer.

2.13. Changes, Addenda

2.13.1. The TPCG reserves the right to change the Schedule of Events or issue Addenda to the RFP at any time. The TPCG also reserves the right to cancel or reissue the RFP.

2.13.2. If the Proposer needs to submit changes or addenda, such shall be submitted in writing, signed by an authorized representative of the Proposer, cross-referenced clearly to the relevant proposal section, prior to the proposal opening, and should be submitted in a sealed envelope. Such shall meet all requirements for the proposal.

2.14. Withdrawal of Proposal

2.14.1. A Proposer may withdraw a proposal that has been submitted at any time up to the proposal closing date and time. To accomplish this, a written request signed by the authorized representative of the Proposer must be submitted to the TPCG Purchasing Manager.

2.15 Waiver of Administrative Informalities

2.15.1. The TPCG reserves the right, at its sole discretion, to waive administrative informalities contained in any proposal.

2.16. Ownership of Proposal

2.16.1. All materials submitted in response to this request become the property of the TPCG. Selection or rejection of a response does not affect this right. All proposals submitted will be retained by the TPCG and not returned to Proposers. Any copyrighted materials in the response are not transferred to the TPCG.

2.17. Cost of Offer Preparation

2.17.1. The TPCG is not liable for any costs incurred by prospective Proposers or Contractors prior to issuance of or entering into a Contract. Costs associated with developing the proposal, preparing for oral presentations, and any other expenses incurred by the Proposer in responding to the RFP are entirely the responsibility of the Proposer, and shall not be reimbursed in any manner by the TPCG.

2.18. Proposal Validity

2.181. All proposals shall be considered valid for acceptance until such time an award is made unless the Proposer provides for a different time period within its proposal response. However, the TPCG reserves the right to reject a proposal if the Respondent's acceptance period is unacceptable and the Proposer is unwilling to extend the validity of its proposal.

2.19. Written or Oral Discussions/Presentations

2.19.1. The TPCG, at its sole discretion, may require all Proposers who submit proposals determined to be reasonably susceptible of being selected for the award to provide an oral presentation of how they propose to meet the agency's objectives. However, the TPCG reserves the right to enter into an Agreement without further discussion of the proposal submitted based on the initial offers received.

2.19.2. Any commitments or representations made by the Proposer during these discussions, if conducted, may become formally recorded in the final contract.

2.19.3. Written or oral discussions/presentations for clarification may be conducted to enhance the TPCG's understanding of any or all of the proposals submitted. Proposals may be accepted without such discussions.

2.20. Acceptance of Proposal Content

2.20.1. The mandatory RFP requirements shall become contractual obligations if a contract ensues. The failure of the successful Proposer to accept these obligations shall result in the rejection of the proposal.

2.21. Evaluation and Selection

2.21.1. All responses received as a result of this RFP are subject to evaluation by the TPCG Evaluation Committee for the purpose of selecting the Proposer with whom the TPCG shall contract.

2.21.2. To evaluate all proposals, a committee whose members have expertise in various areas has been selected. A consensus-based evaluation process shall be used to evaluate responses. This committee will determine which proposals are reasonably susceptible of being selected for award. If required, written or oral discussions may be conducted with any or all of the Proposers to make this determination.

2.21.3. Submittals will be evaluated based on the following general criteria and their respective weights of consideration:

Category / Description	**Points Available**
Adherence to the Specification	40
Technical Approach	10
References	10
Price Proposal	40

2.21.4. The proposal will be evaluated in light of the material and the substantiating evidence presented to the TPCG, not on the basis of what may be inferred. The Proposer with the highest combined score will be recommended for award.

2.21.5. Written recommendation for award shall be made to the Parish President for the responsible Proposer whose proposal, conforming to the RFP, will be the most advantageous to the TPCG, with price and other factors considered.

2.21.6. The committee may reject any or all proposals if none is considered in the best interest of the TPCG.

2.22. Best and Final Offers (BAFO)

2.22.1. The TPCG reserves the right to conduct a BAFO with one or more Proposers determined by the committee to be reasonably susceptible of being selected for award. If conducted, the Proposers selected will receive written notification of their selection, with a list of specific items to be addressed in the BAFO along with instructions for submittal. The BAFO negotiation may be used to assist the TPCG in clarifying the scope of work or to obtain the most cost-effective pricing available from the Proposers.

2.22.2. The written invitation will not obligate the TPCG to a commitment to enter into a contract.

2.23. Notice of Intent to Award

2.23.1. The TPCG intends to award a single Proposer. Award shall be made to the Proposer with the highest points, whose proposal, conforming to the RFP, will be the most advantageous to the TPCG, with price and other factors considered.

2.23.2. Upon review and approval of the evaluation committee's and agency's recommendation for award, TPCG will issue a "Notice of Intent to Award" letter to the apparent successful Proposer. The "Notice of Intent to Award" letter is the notification of the award of the contract. However, the "Notice of Intent to Award" is contingent upon successful negotiation of a final contract. A contract shall be completed and signed by all parties concerned on or before the date indicated in the "Schedule of Events" or noted in correspondence thereafter. "If this date is not met, through no fault of the TPCG, the TPCG may elect to cancel the "Notice of Intent to Award" letter and make the award to the next most advantageous responsible Proposer.

2.23.3. TPCG will also notify all unsuccessful Proposers as to the outcome of the evaluation process. The proposals received with the exception of information appropriately designated as confidential in accordance with La. R.S. 44.1 et. Seq., along with the evaluation factors, points, evaluation committee member names, and the completed evaluation summary and recommendation report are public record. Proposals shall be made available, upon request, to all interested parties after the "Notice of Intent to Award" letter has been issued.

2.24. Contract Negotiations

2.24.1. If for any reason, after final evaluation and issuance of the Intent to Award letter, the responsible Proposer whose proposal is most responsive to the TPCG's needs, price and other evaluation factors set forth in the RFP considered, does not agree to a contract, that proposal shall be rejected and the TPCG may negotiate with the next most advantageous responsible Proposer.

2.24.2. Negotiation may include revision of any non-mandatory terms or conditions, and clarification of the scope of work and/or implementation of the most cost-effective pricing available from the Proposers. Parish President and Parish Council must approve the final contract form and issue a purchase order, if applicable, to complete the process.

2.25. Contract Award and Execution

2.25.1. The TPCG reserves the right to enter into a contract without further discussion of the proposal submitted based on the initial offers received.

2.25.2. The RFP, including any addenda, and the proposal of the selected Contractor will become part of any contract initiated by the TPCG.

2.25.3. Proposers are discouraged from submitting their own standard terms and conditions with their proposals. Proposers should address the specific language in this RFP and submit any exceptions or deviations the Proposer wishes to negotiate. The proposed terms will be negotiated before a final contract is entered. Mandatory terms and conditions are not negotiable.

2.25.4. If the contract negotiation period exceeds thirty (30) days or if the selected Proposer fails to sign the contract within ten (10) calendar days of delivery of it, the TPCG may elect to cancel the award and award the contract to the next responsible Proposer most advantageous to the TPCG. In such an event, said contractor shall be liable to the Owner for the difference between the amount specified in his Proposal and the amount for which the Owner may otherwise procure the services as specified herein.

2.26. Non-negotiable Contract Terms

2.26.1. Non-negotiable contract terms include but are not limited to taxes, assignment of contract, audit of records, EEOC and ADA compliance, record retention, content of contract/order of precedence, contract changes, governing law, claims or controversies, and termination based on contingency of appropriation of funds.

2.26.2. The contractor shall procure all licenses necessary for the conduct of these operations and pay all applicable local, state, and federal taxes.

2.27. Contract Terms

2.27.1. The terms and conditions of this contract cannot be changed, altered, or modified in any way without the advance written approval from the TPCG. If, because of reasons beyond the control of the TPCG, business operation in any or all of the facilities is interrupted or stopped, the TPCG shall have the right to terminate this contract upon ten (10) days certified written notice without penalty thereof.

2.28. Termination of Contract

2.28.1. Termination of the Contract for Cause:

2.28.1.1. The TPCG may terminate the contract for cause based upon the failure of the Contractor to comply with the terms and/or conditions of the contract, or failure to fulfill its performance obligations pursuant to the contract, provided that the TPCG shall give the Contractor written notice specifying the Contractor's failure. If within fifteen (15) days after receipt of such notice, the Contractor shall not have corrected such failure or, in the case of failure which cannot be corrected in fifteen (15) days, begun in good faith to correct such failure and thereafter proceeded diligently to complete such correction, then the TPCG may, at its option, place the Contractor in default and the contract shall terminate on the date specified in such notice.

2.28.1.2. The Contractor may exercise any rights available to it under Louisiana law to terminate for cause upon the failure of the TPCG to comply with the terms and conditions of the contract, provided that the Contractor shall give the TPCG written notice specifying the TPCG's failure and a reasonable opportunity for the TPCG to cure the defect.

2.28.2 Termination of the Contract for Convenience

2.28.2.1. The TPCG may terminate the contract at any time by giving thirty (30) days written notice to the Contractor of such termination or negotiating with the Contractor an effective date. The Contractor shall be entitled to payment for deliverables in progress, to the extent work has been performed satisfactorily.

2.28.3 Termination for Non-Appropriation of Funds

2.27.3.1. Notwithstanding any provisions herein, in the event sufficient funds for the performance of this Agreement are not appropriated by TPCG in any fiscal year covered by this contract, this agreement may be terminated by the TPCG giving notice to the Contractor of such facts and the TPCG's intention to terminate its financial obligation.

2.28.4 Force Majeure

2.27.4.1. In the event of Force Majeure, the TPCG may terminate this agreement by written notice following such casualty and the TPCG shall not be responsible for any damages sustained by the Contracting Party. Force Majeure shall mean fire, earthquake, flood, act of God, strikes or other labor disturbances, riots or civil commotion, litigation, terrorism, war or other acts of any foreign nation, power of government or government agency or authority, or any other cause like or unlike any cause above-mentioned which is beyond the control or authority of the TPCG.

2.29. Assignment

2.28.1. The Contractor shall not assign any interest in the contract by assignment, transfer, or novation, without prior written consent of the TPCG. This provision shall not be construed to prohibit the Contractor from assigning his bank, trust company, or other financial institution any money due or to become due from approved contracts without such prior written consent. Notice of any such assignment or transfer shall be furnished promptly to the TPCG.

2.30. Content of Contract / Order of Precedence

2.29.1. In the event of an inconsistency between the contract, the RFP and/or the Contractor's Proposal, the inconsistency shall be resolved by provisions advantageous to TPCG.

2.31. Contract Changes

2.30.1. No additional changes, enhancements, or modifications to any contract resulting from this RFP shall be made without the prior approval of TPCG.

2.32. Governing Law

2.32.1. All activities associated with this RFP process shall be interpreted under Louisiana Law. All proposals and contracts submitted are subject to provisions of the laws of the State of Louisiana; purchasing rules and regulations; executive orders; standard terms and conditions; special terms and conditions; and specifications listed in this RFP.

2.33. Claims or Controversies

2.33.1. The venue of any suit filed in connection with any claim shall be the Thirty-second Judicial Court, Parish of Terrebonne, State of Louisiana.

2.34. Dispute Resolution

2.34.1. Owner and Contractor may agree to decide claims, disputes and other matters and questions arising out of or relating to the Changes in Work by arbitration. Otherwise, any such claims, disputes and other matters and questions arising out of or relating to the Changes in Work shall be decided under the laws of the State of Louisiana in the 32nd Judicial District Court in and for the Parish of Terrebonne, State of Louisiana.

2.35. Audit of Records

2.35.1. The State legislative auditor, federal auditors and internal auditors of the TPCG, or others so designated by the TPCG, shall have the option to audit all accounts directly pertaining to the resulting contract for a period of five (5) years from the date of final payment or as required by applicable State and Federal law. Records shall be made available during normal working hours for this purpose.

2.36. Record Retention

2.36.1. All records, reports, documents, or other material related to any contract resulting from this RFP and/or obtained or prepared by Contractor in connection with the performance of the services contracted for herein shall become the property of the TPCG and shall, upon request, be returned by Contractor to the TPCG, at Contractor's expense, at termination or expiration of the contract.

2.37. No Guarantee of Quantities

2.37.1. The TPCG shall not obligate itself to contract for or accept more than their actual requirements during the period of the contract, as determined by actual needs and availability of appropriated funds. TPCG reserves the right to increase or decrease the number of units sites of service and number of hours at the unit price(s)

2.38. Insurance Requirements

2.38.1. The successful respondent shall furnish the TPCG with certificates of insurance effecting coverage(s) as described herein. The certificates for each insurance policy are to be signed by a person

authorized by that insurer to bind coverage on its behalf. The certificates are to be received and approved by the TPCG before work commences. The TPCG reserves the right to require complete certified copies of all required policies, at any time. The Contractor shall maintain the insurance as shown in attached for the full term of the contract. Failure to comply shall be grounds for termination of the contract.

2.39. Code of Ethics

2.39.1. The Proposer acknowledges that Chapter 15 of Title 42 of the Louisiana Revised Statutes (La. R.S. 42:1101 et. Seq., Code of Governmental Ethics) applies to the Contracting Party in the performance of services called for in the Contract. The Contractor agrees to immediately notify the State if potential violations of the Code of Governmental Ethics arise at any time during the term of the Contract.

2.40. Warranties

2.40.1 Proposer warrants that all services shall be performed in good faith, with diligence and care, by experienced and qualified personnel in a professional, workmanlike manner, and according to its current description (including any completion criteria) contained in the scope of work.

2.41. Indemnification Agreement

2.41.1. Each Proposer agrees to defend, indemnify, save and hold harmless the Terrebonne Parish Consolidated Government their officers, elected officials, agents, servants and employees, including volunteers. The successful proposer must submit a fully executed Indemnifications Agreement provided with the proposal forms within ten (10) days of receipt of Notice of Award.

2.42. Affidavit Verification of Citizenship

2.42.1. Each Proposer acknowledges and agrees to comply with the provisions of LA R.S. 38:2212.10 and federal law pertaining to E-Verify in the performance of services under the Contract. The successful proposer must submit a fully executed Affidavit Verifications of Citizenship provided with the proposal forms within ten (10) days of receipt of Notice of Award.

2.43. Non-Collusion Affidavit

2.43.1. Each Proposer shall execute a Contractor's Affidavit of Non-Collusion, in the form provided with the proposal forms, at the time of submittal or within ten (10) days thereafter, to the effect that he has not colluded with any other person, firm, or corporation in regard to any Proposal submitted.

2.44. Civil Right Compliance

2.44.1. The Contractor agrees to abide by the requirements of the following as applicable: Title VI and Title VII of the Civil Rights Act of 1964, as amended by the Equal Opportunity Act of 1972, Federal Executive Order 11246, the Federal Rehabilitation Act of 1973, as amended, the Vietnam Era Veteran's Readjustment Assistance Act of 1974, Title IX of the Education Amendments of 1972, the Age Act of 1975, and Contractor agrees to abide by the requirements of the Americans with Disabilities Act of 1990. Contractor agrees not to discriminate in its employment practices and will render services under the contract without regard to race, color, religion, sex, national origin, veteran status, political affiliation, or

disabilities. Any act of discrimination committed by Contractor, or failure to comply with these statutory obligations when applicable shall be grounds for termination of the contract.

2.45. Equal Employment Opportunity

2.45.1. Proposer acknowledges that all contracts shall contain provisions requiring compliance with E. O. 11246, "Equal Employment Opportunity," and as supplemented by regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor".

2.46. Byrd-Anti-Lobbying Amendment

2.46.1. Proposers who are awarded a contract of $100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

2.46.2 Contractors must sign and submit to the non-federal entity the Certification Regarding Lobbying Form, which is attached hereto.

2.47. Debarment and Suspension

2.47.1. This contract is a covered transaction for the purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the contractor is required to verify that none of the contractor's principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935). The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower-tier transaction it enters into. His certification is a material representation of fact relied upon by TPCG. If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to TPCG the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

2.48. Program Fraud and False of Fraudulent Statements or related Acts

2.48.1. The Contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the Contractor's actions pertaining to this contract.

2.49. No Obligation by Federal Government

2.49.1. The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.

2.50. DHS Seal, Logo, and Flags:

2.50.1. The contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval.

2.51. Compliance with Federal , Regulations, and Executive Orders

2.51.1 This is an acknowledgement that FEMA financial assistance may used to fund all or a portion of the contract. The contractor will comply with all applicable Federal law, regulations, executive orders, FEMA policies, procedures, and directives.

2.52. Default of Vendor:

2.52.1. Failure to deliver the services within the times specified in the proposal will constitute a default and may cause cancellation of the contract. Where the TPCG has determined the Vendor to be in default, the TPCG reserves the right to purchase any and/or all services covered by the contract on the open market and to charge the Vendor with cost in excess of the contract price until such assessed charges have been paid, no subsequent proposal from the defaulting Vendor will be considered.

2.53. Delivery:

2.54.1. It is imperative that the Fire Apparatus be delivered in the time frame stipulated on the Official Proposal Form. If delivery cannot be made in the time specified on the form, proposer must notify the Terrebonne Parish Consolidated Government Purchasing Division in writing of delay.

2.54. Prices:

2.55.1. Unless otherwise specified by TPCG in the solicitation, the proposed price must be complete including transportation prepaid by bidder to destination and firm for acceptance for a minimum of 45 days. If accepted, prices must be firm for the contractual period. Bids other than F.O.B. Destination may be rejected. **Any freight/shipping charges should be included in unit pricing.**

2.55. Purchase Order:

2.56.1**.** The successful proposer will be issued a purchase order once the proposal has been awarded and the vendor has submitted all required documents in the time frame allotted and their insurance certificate has been approved by the TPCG Risk Management Department.

2.56. Payment Structure:

2.57.1. The awarded vendor shall submit invoice(s) to Gina Bergeron at 301 Plant Road Houma, LA Houma, Louisiana 70363 or via email at gbergeron@tpcg.org The invoice total shall not exceed the

purchase order amount. The invoice(s) must include the purchase order number, vehicle serial number and the name, address, and phone number of the vendor. No items other than those included in the proposal shall be billed; and unit prices shall prevail.

3. Part 3 SPECIFICATIONS:

3.1. General:

3.1.1. Whenever materials or equipment are specified or described in the Proposal Documents by using the name of a certain brand, make, supplier, manufacturer, or definite specification; the naming or specification of the item is only intended to denote the quality standard of the item desired and to convey and establish the general style, type, character and quality of material , equipment or product desired and does not restrict respondents to the specific brand, make, manufacturer, or specification named; and that equivalent products may be acceptable.

3.1.2. The fire apparatus and equipment furnished to meet the specifications hereafter must be the product of an established, reputable fire apparatus manufacturer. Each proposer shall furnish satisfactory evidence of the manufacturer's ability to construct, supply service parts and technical assistance for the apparatus specified. The proposer must state the location of the factory and the location for service.

3.1.3. The general construction of the apparatus shall consider the nature and distribution of the load to be sustained and the general character of the service to which the apparatus is to be subjected when placed in service. The general design and construction shall be of the latest modern type and be fully modular for transfer of the body to another chassis without cutting or welding and be in accordance with the best firefighting apparatus engineering and practice. These specifications cover specific requirements as to the type of construction and test to which the apparatus must conform, together with certain details as to finish, material preferences, equipment, and appliances which the successful proposer must include.

3.1.4. Complete apparatus must be built in accordance with the recommendations of the National Fire Protection Association 1901 in its latest edition. The manufacturer shall operate a Quality Management System under the requirements of ISO 9001. These standards sponsored by the "International Organization for Standardization (ISO)" specify the quality systems that shall be established by the manufacturer for design, manufacture, installation, and service of products.

3.2. Specification Questionnaire:

Please fully complete the questionnaire below with the understanding that missing, false or misleading information will be grounds for rejection of your proposal.

1. ISO certificate of compliance is included as required with this proposal. YES____ NO___

2. Has proposer taken exceptions to specifications: YES ____ NO ____

3. Are exceptions listed in the proposal as required by the specifications: YES ____ NO ____

If "YES", have all deviations been fully explained: YES ____ NO ____

4. How many years manufacturing apparatus with aluminum aerial device: _____

Date of manufacturer incorporation: _____

5. Does the apparatus manufacturer fabricate and build the following items in their factory? If the apparatus manufacturer does not build these items, where are they built?

Aerial Device: YES ____ NO ____ If no, Factory Location: _____

Torque Box & Jacks: YES ____ NO ____ If no, Factory Location: _____

Chassis: YES ____ NO ____ If no, Factory Location: _____

Body: YES ____ NO ____ If no, Factory Location: _____

Cab: YES ____ NO ____ If no, Factory Location: _____

6. Location of nearest service center: _____

Is on-site warranty service available: YES ____ NO ____

7. Are pins required in the jack legs for stabilization or as a safety measure: YES ____ NO ____

If yes, why are they required: _____

_____

8. Material and alloy used in construction of the aerial device: _____

9. Material(s) used in construction of the body: _____

10. Material(s) in construction of Subframe: _____

11. What is overall outrigger spread at full outrigger extension? _____

12. What is the actual rated load capacity when the aerial operates on a 3.7-degree side slope? _____

13. Water Tank size proposed: _____

14. In the past 10 years, has any aerial device that the actual aerial or apparatus manufacturer constructed suffered a catastrophic structural failure while in service or during a demonstration? YES ____ NO ____

- If yes, provide a complete description of the failure with submittal.

15. During the past 10 years, has any aerial device that the actual aerial or apparatus manufacturer constructed ever tipped over while in service or during an in-service test or demonstration? YES ____ NO ____

If yes, provide a complete description of the failure with submittal.

16. Please state the structural safety factor of your apparatus at full extension as follows:

Structural Safety Factor as defined by NFPA 1901 Section A-20-20.1 _____

Structural Safety Factor while flowing water _____

Stability Safety Factory as defined by NFPA 1901 20-21.1 & 2 _____

17. Is a drawing of the actual Load Chart per NFPA 1901 Sections 20-3.4 or 20-8.4 that will be permanently affixed to the aerial console included with the proposal? YES ____ NO ____

18. What is the weight of allowed personnel and equipment included in the aerial load capacity of your aerial device at a 2.5:1 safety factor at full extension at 0 degrees?

_____# Personnel + _____# Equip = _____ Total

19. Are rung covers utilized on the walking rungs? YES ____ NO ____

What material is used for rung covers? _____

What is the current cost of a complete rung cover replacement? _____

Are rung covers susceptible to melting, peeling, or drying out? YES ____ NO ____

20. Is the aerial device provided painted? YES ____ NO ____

If YES, why is it painted? _____

What is the current cost for an aerial ladder repaint? _____

21. Complete the following ladder dimension chart:

	Width	Handrail Height
Base Section		
Second Section		
Fly Section		

22. Load Limit Charts (Proposer must include a copy of the load chart which these tables describe)

Tip Load with no water flowing:

	No. of People	Pounds
-8 to 40 degrees		
41 to 49 degrees		
50 to 76 degrees		

Distributed loads with no water flowing and one man at the tip:

Elevation	No. of People	Pounds
-8 to 30 degrees		
31 to 45 degrees		
46 to 76 degrees		

Ladder tip load while flowing water. (1000 GPM)

Elevation	No. of People	Pounds
-8 to 76 degrees		

23. Does the manufacturer maintain a Quality Control program in strict accordance with NFPA 1901 and 1914 requirements? YES ____ NO ____

24. Is each and every aerial device manufactured by the builder tested in compliance with NFPA 1901 and 1914 requirements? YES ____ NO ____

25. The buyer will be notified prior to aerial testing so that they may witness the test. YES ____ NO ____

26. If requested, will the builder provide a complete set of test results on an aerial device of this model for review by the buyer? YES ____ NO ____

26. Warranties Provided

	Warranty	Who Provides the Warranty
Body Structural Warranty		
Booster Tank Warranty		
Cab Structure Warranty		
General Mechanical Warranty		
Frame Warranty		

Warranties

The manufacturer of the fire apparatus shall offer, as a minimum warranty, one (1) year full parts and labor on the complete apparatus. All proposers must state in writing their detailed warranty.

Each proposer shall offer, as a minimum, warranties as described in this specification. A copy of each warranty supplied by the apparatus builder shall be provided upon request.

Delivery Conditions

The Proposer shall include prepaid delivery. A factory trained representative shall deliver the unit, unless factory acceptance and instruction is preferred. The representative shall be prepared to familiarize the fire department personnel with the operation and maintenance of the apparatus. No proposal will be considered that requires the buyer to deposit with the proposer a down payment, prepayment of chassis, or any other such consideration as a condition to the proposer. Such a requirement shall be grounds for rejection of the proposal.

The responsibility for the apparatus and equipment remains with the manufacturer until satisfactory completion of acceptance test and formal acceptance of the apparatus is made.

Apparatus shall be delivered under its own power, to ensure proper break-in of all components while still under warranty. Rail or truck freight is not acceptable.

Exceptions

It is not the intent of these specifications to eliminate any qualified proposer. Exceptions will be allowed if they are equal to or superior to that specified and provided, they are listed and fully explained on a separate page, entitled “Exceptions to Specifications". Where the buyer cannot easily determine the acceptability of an exception, detailed information supporting the equivalence of the item proposed shall be provided. The exception list shall refer to specification page number and paragraph heading. Exceptions taken for the convenience of a proposer where the item specified is available to all builders will not be accepted. If there are no exceptions to the specifications listed, then it shall be assumed that the buyer will find no deviations between the advertised specifications and the proposal submitted.

The apparatus will be inspected upon delivery for compliance with the specifications. Deviations will not be accepted and may be cause for rejection of the apparatus unless they were originally listed in “Exceptions to Specifications" in the proposer’s submittal. Proposals taking total or general exceptions shall not be accepted. Where a manufacturer is unable to meet the specification, any alternative offered for consideration must be the closest equivalent offered in the industry.

The buyer will compare each proposal closely with the specifications to determine compliance. Submittals found to have deviations that are not listed, may be cause for rejection.

Minor details of construction and materials, that are not otherwise specified, are left to the discretion of the contractor who shall be solely responsible for the design and construction of all features.

Single Source Manufacture

In order to protect the Purchaser from divided warranty responsibility between chassis and body manufacturers, proposals will only be accepted from apparatus builders who design, fabricate, and assemble the complete apparatus at their own facilities. This shall include the cab shell, chassis assembly, aerial device, and complete body structure. Private labeling of another manufacturer's chassis or aerial device will not meet the requirements of this section.

Engine Installation Certification

It is the intention of the Purchaser to acquire apparatus of a proven design that will meet the installation requirements of the engine and transmission manufacturers. Therefore, each proposer shall submit a copy of the engine and transmission installation approval. This approval must be submitted for the exact configuration of power train components as specified in these proposal documents. This shall include the cab, engine, transmission, cooling system, and other such items.

The engine installation shall not require the operation of any type of "power-down" feature in order to meet these tests. Failure to submit these cooling certifications or the submitting of certifications not pertaining to the particular configuration of the apparatus specified may result in rejection of the apparatus proposal.

Service Capability

As the entity responsible per NFPA 1071, the buyer requires that each proposer be capable of providing both in-house and on-site service for the apparatus proposed through the use of either an established emergency

vehicle service center or a mobile technician. The proposer shall have full time EVT certified maintenance technicians in compliance with NFPA 1071 classifications F-2 through F-6 on staff to provide service. On-site service shall be the primary mode of maintenance and warranty repair to eliminate the requirement of transporting the vehicle outside the fire department jurisdiction. The proposer shall include a copy of the mechanics EVT certification with certified classifications as proof of meeting this requirement with the proposal.

General Body Construction

As all material and equipment specified herein are available to all proposers, aluminum type apparatus are being solicited. Steel bodied type apparatus are not being called for and shall not be considered. The entire apparatus body, including subframe, will be constructed of aluminum.

The apparatus body must be of all aluminum modular type and shall be completely assembled prior to installation on the chassis.

Special consideration will be given to the accessibility of various components requiring periodic maintenance operations, ease of operation, and symmetrical proportions.

The body is to be completely built, painted, and installed by the prime body manufacturer, which minimizes third part involvement on engineering, design, service and warranty questions. Apparatus using a subcontracted body will not be acceptable.

Authority of Specifications

These specifications, together with any other documents required herein, shall be included in the final contract. Each proposer should submit a copy of his proposed contract form.

All design, operational and material features must fully comply with the State and Federal Motor Vehicle Safety Standards (FMVSS) as stated in applicable law.

Inspections Trips

During construction, the successful proposer shall make arrangements to visit the buying authority for a pre-construction conference. The successful proposer shall also make arrangements for one (1) visit to the factory for a final inspection prior to delivery. All expenses incurred for travel and lodging must be included in the proposed price.

Hose Bed Capacity

Hose bed hose load allowance on the apparatus shall be 1000 lbs.

Overall Height Restriction

The apparatus shall have overall height restriction of 12’ 0” .

Overall Length Restriction

The unit has no overall length restrictions.

NFPA Compliance

The supplied components of the apparatus shall be compliant with NFPA 1901, 2016 edition.

Equipment Capacity

Equipment allowance on the apparatus shall be 2500 lbs. This allowance is in addition to the weight of the hoses and ground ladders listed in the shop order as applicable.

Front Bumper Extension
The bumper shall be extended approximately 20” from the face of the cab as required.

Bumper Gravel Shield
The extended front bumper gravel shield shall be made of 3/16” minimum aluminum treadplate material. The gravel shield shall include 1" turn down lips to protect the top edge of the heavy-duty bumper from damage.

Heavy Duty Bumper

A heavy duty 10" high formed type front bumper constructed of 1/4" minimum steel shall be provided. The front corners of the bumper shall be provided with a 45-degree tapered to produce an 8.5" wide mounting surface and to reduce swing clearance.

Additional support shall be provided from the frame rails for the outboard side areas on bumper extensions greater than 12in.

The bumper shall be painted as specified.

Inset Notch for Siren

The bumper shall be provided with an inset notch for a mechanical siren. The notch shall have dimensions of 5.625" deep x 10.5" wide.

The notch shall be located on the driver's side.

Bumper Tray - Center
A hose tray constructed of 1/8” aluminum shall be recessed into the front bumper extension. The tray shall be located in the center of the bumper and be approximately 12" deep (11" to the top of the slats). One-inch-thick aluminum slats shall be included in the bottom of the hose tray to aid in the dissipation of water from the tray.

Lid, Bumper Hose Tray

The center bumper tray shall have a diamond plate lid. The lid shall be hinged and include a D-Ring latch, rubber seal and gas shock hold open device.

Hose Tray Lid Notch

The front bumper hose tray lid shall be notched to allow for preconnected hose.

The notch shall be: 4" front to rear x 3" side to side centered on officer side of center tray lid.

Frame Assembly

The frame shall consist of two (2) C-channel frame rails with heavy-duty cross-members. Each frame rail shall have the following minimum specifications in order to minimize frame deflection under load and thereby improve vehicle ride and extend the life of the frame:

Dimensions: 10-1/4” x 3-1/2” x 3/8”

Material: 110,000-psi minimum yield strength, high strength, low alloy steel

Section Modulus: 16.61 cu. in.

Resistance to Bending Moment (RBM): 1,827,045 in. lbs.

If larger rails are provided, the maximum height of each frame rail shall not exceed the 10-1/4” dimension by more than 1/2” in order to ensure the lowest possible body height for ease of access as well as the lowest possible vehicle center of gravity for maximum stability.

There shall be a minimum of six (6) cross-members joining the two (2) frame rails in order to make the frame rigid and hold the rails/liners in alignment. The cross-members shall be a combination of a formed steel C-channel design along with heavy duty steel fabricated designs as required for the exact chassis configuration. The cross-members shall be attached to the frame rails with not less than four (4) bolts at each end arranged in a bolt pattern to adequately distribute the cross-member load into the rail/liner and minimize stress concentrations.

All frame fasteners shall be high-strength Grade 8, flanged-head threaded bolts and nuts for frame strength, durability, and ease of repair. The nuts shall be Stover locknuts to help prevent loosening. The frame fasteners shall be tightened to the proper torque at the time of assembly.

The frame rails shall be hot dip galvanized and powder coated for improved corrosion resistance. The galvanization shall be a minimum of 4 mils thick and done in accordance with ASTM A123. The powder coat shall be 6.5 mils thick (+/- 1.5 mils) and pass ASTM D3359 testing.

The frame cross-members and frame mounted components (suspensions, axles, air tanks, battery boxes, fuel tank, etc.) shall be painted black.

The custom chassis frame shall have a WHEEL ALIGNMENT in order to achieve maximum vehicle road performance and to promote long tire life. The alignment shall conform to the manufacturer’s internal specifications. All wheel lug nuts, and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery upon request.

Frame Liner

A 9-3/8” x 3-1/8” x 3/8” channel frame liner shall be bolted to each frame rail for added strength and rigidity. Frame liners shall be made of 110,000 psi minimum yield, high strength, low alloy steel. The frame rail liners shall be hot dip galvanized and powder coated for improved corrosion resistance. The galvanization shall be a minimum of 4 mils thick and done in accordance with ASTM A123. The powder coat shall be 6.5 mils thick (+/- 1.5 mils) and pass ASTM D3359 testing.

Each frame rail with liner shall have the following minimum characteristics:

Section Modulus: 28.74 cu. in.

RBM: 3,161,400 in. lbs.

The frame liners shall be inserted inside the open portion of the frame rails and shall run continuously from the rear of the frame to the centerline of the front axle to provide maximum frame strength at all critical load points.

Coated Fasteners

The custom chassis frame assembly shall be assembled using GEOMET 720 coated fasteners for corrosion resistance.

Front Axle

The vehicle shall utilize a Meritor FL-943 5” drop beam front axle with a rated capacity of 20,000 lbs. It shall have “easy steer” knuckle pin bushings and 68.83” kingpin centers. The axle shall be of I-beam construction and utilize grease-lubricated wheel bearings. The vehicle shall have a nominal cramp angle of 45 degrees, plus two (+ 2) degrees to minus three (- 3) degrees.

The front axle hubs shall be made from ductile iron and shall be designed for use with 10 hole hub-piloted wheels in order to improve wheel centering and extend tire life.

The front springs shall be parabolic tapered, minimum 4” wide x 54” long (flat), minimum three (3) leaf, progressive rate with a capacity of 20,000 lbs. at the ground. The springs shall have Berlin style eyes and rubber bushings on each end with an additional standard wrap at the front eye. Tapered leaf springs provide a 20% ride improvement over standard straight spring systems.

The vehicle shall be equipped with a Sheppard model M110 integral power steering gear, used in conjunction with a power assist cylinder. The steering assembly shall be rated to statically steer a maximum front axle load of 20,000 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall be able to operate mechanically should the hydraulic system fail.

In order to achieve maximum vehicle road performance and to promote long tire life, there shall be a wheel alignment. The alignment shall conform to the manufacturer’s internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery.

Shock Absorbers Front

Koni model 90 shock absorbers shall be provided for the front axle. The shocks shall be three way adjustable.

The shocks shall be covered by the manufacturer's standard warranty.

Rear Axle

The vehicle shall utilize an Meritor RS-30-185 single rear axle with single reduction hypoid gearing and a manufacturer's rated capacity of 33,000 lbs. The axle shall be equipped with oil-lubricated wheel bearings with Meritor oil seals.

The rear axle hubs shall be made from ductile iron and shall be designed for use with 10 hole hub-piloted wheels to improve wheel centering and extend tire use.

Rear Suspension

The rear suspension shall be a Reyco model 79KB. The suspension shall include linear-rate slipper type leaf springs that eliminate spring eyes and shackles. The suspension shall also include auxiliary "helper" leaf springs, one (1) fixed torque arm, one (1) adjustable torque arm and cast spring hangers. The suspension shall be rated for 33,000 lbs.

Front Wheels

The front wheels shall be steel hub-piloted disc sized appropriately for the tires.

Rear Wheels

There shall be four hub-piloted steel disc wheels sized appropriately for the tires.

Front Tires

The front tires shall be two (2) Michelin 385/65R22.5 tubeless radial tires with X MULTI HL Z highway tread.

The tires with wheels shall have the following weight capacity and speed ratings:

22,000 lbs. @ 68 MPH

The wheels and tires shall conform to the Tire and Rim Association requirements.

Rear Tires

The rear tires shall be Michelin 315/80R 22.5 tubeless type 20 PR radial tires with X MULTI Z tread.

The tires with wheels shall have the following weight capacity:

33,080 lbs. (dual) @ 75 MPH. (Intermittent fire service max load 38,904 lbs)

The wheels and tires shall conform to the Tire and Rim Association requirements.

Tire Pressure Indicators

The apparatus shall be provided with Real Wheels AirGuard LED tire pressure indicating valve stem caps. When the tire is under inflated by 5-10 PSI, the LED indicator on the cap shall flash red. The indicator housings shall be shock resistant and constructed from polished stainless steel. The indicators shall be calibrated by attaching to valve stem of a tire at proper air pressure per load ratings and easily re-calibrated by simply removing and re-installing them during service.

Front Brakes

The front axle shall be equipped with Meritor DiscPlus EX225H 17-inch disc brakes.

The brakes shall be covered by the manufacturer's standard warranty which is two years, unlimited mileage and parts only.

Brake System

The vehicle shall be equipped with air-operated brakes and an anti-lock braking system (ABS). The brake system shall meet or exceed the design and performance requirements of the current Federal Motor Vehicle Safety Standard (FMVSS)-121, and the test requirements of the current NFPA 1901 Standard.

A dual-treadle brake valve shall correctly proportion the braking power between the front and rear systems. The air system shall be provided with a rapid pressure build-up feature, designed to meet current NFPA 1901 requirements, to allow the vehicle to begin its emergency response as quickly as possible.

A pressure-protection valve shall be installed to prevent use of the air horns or other air-operated devices should the air system pressure drop below 85 psi. This feature is designed to prevent inadvertent actuation of the emergency/parking brakes while the vehicle is in motion.

The braking system shall have a minimum of three (3) air tank reservoirs for a total air system capacity of 5,214 cu. in. One (1) reservoir shall serve as the wet tank and a minimum of one (1) tank shall be supplied for each of the front and rear axles. The total system shall carry a sufficient volume of air to comply with FMVSS-121.

Tank Capacities in Cubic Inches:

Wet	Front	Rear	Total
1,738	1,738	1,738	5,214

Spring-actuated emergency/parking brakes shall be installed on the rear axle.

A Bendix-Westinghouse SR-1 valve, in conjunction with a double check valve system, shall provide automatic emergency brake application when the air brake system pressure falls below 40 psi in order to safely bring the vehicle to a stop in case of an accidental loss of braking system air pressure.

A four-channel Wabco ABS shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to both front and rear axles. All electrical connections shall be environmentally sealed for protection against water, weather, and vibration.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall detect approaching wheel lock-up and instantly modulate (or pump) the brake pressure up to five (5) times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual-circuit design configured in a diagonal pattern. Should a malfunction occur in one circuit, that circuit shall revert to normal braking action. A warning light at the driver's instrument panel shall signal a malfunction.

The system shall also be configured to work in conjunction with all auxiliary engine, exhaust, or driveline brakes to prevent wheel lock-up.

To improve maintenance troubleshooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started, and a dash-mounted light shall go out once the vehicle is moving above 4 MPH.

A 3 year/300,000-mile parts and labor Anti-Locking Braking System (ABS) warranty shall be provided as standard by Meritor Automotive.

Park Brake Release

One (1) Bendix-Westinghouse PP-5 parking brake control valve shall be supplied on the lower dash panel within easy reach of the driver.

Brake System Fittings

All air brake system hoses on the chassis shall be connected by use of compression fittings. Includes air lines in the chassis cab and accessories (if equipped).

Rear Brakes

The rear axle shall be equipped with ArvinMeritor 16.5" x 8.625" P-Cast S-cam brakes with cast brake shoes. The brakes shall be furnished with Haldex automatic slack adjusters.

A 3 year/unlimited miles parts and 3-year labor rear brake warranty shall be provided as standard by ArvinMeritor Automotive. The warranty shall include bushings, seals, and cams.

Air Dryer

The chassis air system shall be equipped with a Bendix-Westinghouse AD-9 air dryer to remove moisture from the air in order to help prevent the air lines from freezing in cold weather and prolong the life of the braking system components.

Air Inlet

A 1/4" brass quick-release air inlet with a male connection shall be provided. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging air directly into the wet tank of the air brake system. It shall be located driver door jamb.

Air Lines

Air brake lines shall be constructed of color-coded nylon tubing routed in a manner to protect them from damage. Brass fittings shall be provided.

Air Horns

Dual Hadley e-tone air horns shall be provided, connected to the chassis air system. The horns shall be mounted through the front bumper. The front bumper shall have two (2) holes punched to accommodate the air horns. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure.

Transmission Selector

A push-button transmission shift module, Allison model 29538373, shall be located to the right side of the steering column within easy reach of the driver. The shift position indicator shall be indirectly lit for after dark operation. The shift module shall have a "Do Not Shift" light and a "Service" indicator light. The shift module shall have means to enter a diagnostic mode and display diagnostic data including oil life monitor, filter life monitor, transmission health monitor and fluid level. A transmission temperature gauge with warning light and buzzer shall be installed on the cab instrument panel.

Transmission Fluid

The transmission fluid shall be TranSynd, Shell Spirax S6ATF A295, or equivalent synthetic.

Vehicle Speed

Electronic speed limiting set at 60 MPH as required by NFPA 1901.

Engine

The vehicle shall utilize a Cummins X12 engine as described below:

- 455 Horsepower
- Six (6) cylinder
- Variable Geometry Turbocharged
- Charge Air Cooled (CAC) 4-cycle diesel
- Cummins XPI high pressure fuel injection system
- Fuel cooler (air to liquid)
- 720 cu.in. (11.8 liter) displacement
- 455 gross BHP at 1900 RPM and a peak torque of 1700 lb.ft. at 1000 RPM with a governed RPM of 2000
- Bore and stroke shall be 5.2 x 5.67
- Engine lubrication system shall have a minimum capacity, to include filter, of 49 quarts
- Cooled Exhaust Gas Recirculation (EGR)
- Delco-Remy 39 MT-HD 12-volt starter
- 26 cubic foot per minute air compressor
- Single module after treatment system consisting of a oxidation catalyst and diesel particulate filter and selective catalyst reduction system
- Ember separator compliant with current NFPA 1901 standard

- The engine shall be compliant with 2021 EPA Emission standards

The engine air intake shall draw air through the front cab grill. The intake opening shall be located on the officer (right) side behind front cab face with a plenum that directs air to the air filter. The air cleaner shall be an 11" diameter dry type that is easily accessed for service. Air cleaner intake piping shall be made from aluminized steel tubing with flexible rubber hoses. Air cleaner intake piping clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

The engine exhaust piping shall be a minimum of 4" diameter welded aluminized steel tubing. The muffler shall be mounted horizontally under the right-hand frame rail in back of the cab in order to minimize heat transmission to the cab and its occupants. The exhaust shall be directed away from the vehicle on the right side ahead of the rear wheels in order to keep exhaust fumes as far away as possible from the cab and pump operator position.

A 5-year/100,000 miles parts and labor warranty shall be provided as standard by Cummins. Documentation of said warranty shall be submitted upon request.

A copy of the Engine Installation Review stating the engine installation meets Cummins recommendations shall be provided as requested. The engine installation shall not require the operation of any type of "power-down" feature to meet engine installation tests.

Transmission

The vehicle shall utilize an Allison EVS4000P, electronic, 5-speed automatic transmission.

A transmission oil temperature gauge with warning light and buzzer shall be installed on the cab instrument panel to warn the driver of high oil temperatures that may damage the transmission.

The transmission shall have a gross input torque rating of up to 1850 lb. ft. and a gross input power rating of up to 600 HP.

The gear ratios shall be as follows:
1 - 3.51
2 - 1.91
3 - 1.43
4 - 1.00
5 - .74
R - 4.80

The transmission shall be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the operator.

The transmission shall have a lubricant capacity of 51 quarts.

A water-to-oil transmission oil cooler shall be provided to ensure proper cooling of the transmission when the vehicle is stationary (no air flow).

The transmission shall contain two engine driven PTO openings located at the 1 and 8 o'clock positions. The automatic transmission shall be equipped with a power lock-up device. The transmission lock-up shall prevent down shifting of transmission when engine speed is decreased during pump operations, thereby maintaining a constant gear ratio. Transmission lock-up shall be automatically activated when placing pump in gear. Transmission lock-up shall be automatically deactivated when disengaging pump for normal road operation.

A 5-year/unlimited miles parts and labor warranty shall be standard by Allison Transmission. Documentation of said warranty shall be submitted upon request.

Automatic Shift to Neutral

The transmission shall be programmed to comply with NFPA 1901 and automatically shift to neutral upon application of the parking brake.

Jacobs Engine Brake

One (1) Jacobs engine brake shall be installed to assist in slowing and controlling the vehicle as required by NFPA 1901 for vehicles with gross vehicle weight ratings (GVWR) of 36,000 lbs. or greater. An on-off control switch and a high-medium-low selector switch shall be mounted in the cab accessible to the driver.

When activated, the Jacobs engine brake shall cut off the flow of fuel to the cylinders and alter the timing of the exhaust valves. This shall transform the engine into a high-pressure air compressor, driven by the wheels, and the horsepower absorbed by the engine in this mode shall slow the vehicle. The selector switch allows the driver to select the amount of retarding power.

When the on-off switch is in the "on" position, the engine brake shall be automatically applied whenever the accelerator is in the idle position and the automatic transmission is in the lock-up mode. If the accelerator is depressed or if the on-off switch is placed in the "off" position, the engine brake shall immediately release and allow the engine to return to its normal function.

The rear brake lights shall illuminate when the Jacobs engine brake is activated.

Transmission Programming

The transmission shall include the Allison 2nd gear Pre-Select feature. This option will direct the transmission to down shift to second gear when the throttle is released, and the Jacobs engine brake is engaged. This feature is designed to increase brake life and aid vehicle braking.

Radiator

The cooling system shall include an aluminum tube-and-fin radiator with a minimum of 1,408 total square inches of frontal area to ensure adequate cooling under all operating conditions. There shall be a drain valve in the bottom tank to allow the radiator to be serviced. A sight glass shall be included for quick fluid level assessment. The radiator shall be installed at the prescribed angle in order to achieve the maximum operational

effectiveness. This shall be accomplished according to established work instructions and properly calibrated angle measurement equipment.

Silicone Hoses

All radiator and heater hoses shall be silicone. Pressure compensating band clamps shall be used to eliminate hose pinching on all hoses 3/4" diameter and larger. All radiator hoses shall be routed, loomed, and secured so as to provide maximum protection from chafing, crushing, or contact with other moving parts.

Coolant

The cooling system shall be filled with a 50/50 mixture of water and antifreeze/coolant conditioner to provide freezing protection to minus 40 (- 40) degrees F for operation in severe winter temperatures.

Coolant Recovery

There shall be a coolant overflow recovery system provided.

Charge Air Cooler System

The system shall include a charge air cooler to ensure adequate cooling of the turbocharged air for proper engine operation and maximum performance.

Charge Air Cooler Hoses

Charge air cooler hoses shall be made from high-temperature, wire-reinforced silicone to withstand the extremely high temperatures and pressures of the turbocharged air. The hoses shall incorporate a flexible hump section to allow motion and misalignment of the engine relative to the charge air cooler. Charge air cooler hose clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

Fan/Shroud

The fan shall be 30” in diameter with eleven (11) blades for maximum airflow and dynamic balance. It shall be made of nylon for strength and corrosion resistance. The fan shall be installed with grade 8 hardware which has been treated with thread locker for additional security. A fan shroud attached to the radiator shall be provided to prevent recirculation of engine compartment air around the fan in order to maximize the cooling airflow through the radiator. The fan shroud shall be constructed of fiber-reinforced high temperature plastic. The shroud shall be specifically formed with curved surfaces which improves air flow and cooling.

Transmission Cooler

The cooling system shall include a liquid-to-liquid transmission cooler capable of cooling the heat generated from the transmission. When a transmission retarder is selected, the cooler shall have an increased capacity to handle the additional heat load.

Fuel Tank

One (1) 65-gallon fuel tank shall be provided. The tank shall be of an all-welded, aluminized-steel construction with anti-surge baffles and shall conform to all applicable Administration (FHWA) 393.65 and 393.67 standards. The tank shall be mounted below the frame rails at the rear of the chassis for maximum protection. The tank shall be secured with two (2) wrap-around T-bolt type stainless steel straps. Each strap shall be fitted with protective rubber insulation and shall be secured with Grade 8 hardware. This design allows for tank removal from below the chassis.

The fuel tank shall be equipped with a 2" diameter filler neck. The filler neck shall extend to the rear of the vehicle behind the rear tires and away from the heat of the exhaust system as required by NFPA 1901 Standard for Automotive Fire Apparatus. The open end of the filler neck shall be equipped with a twist-off filler cap with a retaining chain.

The tank shall be plumbed with top-draw and top-return fuel lines in order to protect the lines from road debris. Bottom-draw and/or bottom-return fuel lines are not acceptable. A vent shall be provided at the top of the tank. The vent shall be connected to the filler neck to prevent splash-back during fueling operations. A .50" NPT drain plug shall be provided at the bottom of the tank.

The tank shall have a minimum useable capacity of 65 gallons of fuel with a sufficient additional volume to allow for thermal expansion of the fuel without overflowing the vent.

A fuel pump shall be provided and sized by the engine manufacturer as part of the engine.

Fuel Line

All fuel lines shall be rubber.

Alternator

There shall be a 420-amp Leece Neville alternator installed as specified. The alternator shall be a Leece Neville brushless type with integral rectifier and adjustable voltage regulator with an output of 369 amps per NFPA 1901 rating (420 amps per SAE J56).

Battery System

The manufacturer shall supply four (4) heavy duty Group 31 12-volt maintenance-free batteries. Each battery shall be installed and positioned so as to allow easy replacement of any single battery. Each battery shall be equipped with carrying handles to facilitate ease of removal and replacement. There shall be two (2) steel frame mounted battery boxes, one (1) on the left frame rail and one (1) on the right frame rail. Each battery box shall be secured to the frame rail with Grade 8 hardware. Each battery box shall hold (2) batteries. The batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections. The battery stud terminals shall each be treated with concentrated industrial soft-seal after cable installation to promote corrosion prevention. The positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification.

Batteries shall be placed on non-corrosive rubber matting and secured with hold-down brackets to prevent movement, vibration, and road shock. The hold-down bracket J-hooks shall be cut to fit and shall have all sharp edges removed. The batteries shall be placed in plastic trays to provide preliminary containment should there be leakage of hazardous battery fluids. There shall be two (2) plastic trays, each containing (2) batteries. Each battery tray shall be equipped with a rubber vent hose to facilitate drainage. The rubber vent hose shall be routed to drain beneath the battery box. The batteries shall be positioned in well-ventilated areas.

One (1) positive and one (1) negative jumper stud shall be provided.

Batteries shall have a warranty of twelve (12) months that shall commence upon the date of delivery of the apparatus.

Engine Fan Clutch

The engine shall be equipped with a thermostatically controlled engine cooling fan. The fan shall be belt driven and utilize a clutch to engage when the engine reaches a specified temperature.

When disengaged, the fan clutch shall allow for improved performance from optional floor heaters, reduced cab interior noise, increased acceleration, and improved fuel economy.

The fan shall be equipped with a fail-safe engagement so that if the clutch fails the fan shall engage to prevent engine overheating.

Drivelines

Drivelines shall have a heavy-duty metal tube and shall be equipped with Spicer 1810 series universal joints to allow full-transmitted torque to the axle(s). Drive shafts shall be axially straight, concentric with axis and dynamically balanced.

Rear Tow Eyes

Two (2) heavy duty tow eyes made of 3/4” minimum thick steel having 2.5” diameter holes shall be bolted directly to the rear of the frame to allow towing (not lifting) of the apparatus. The tow eyes shall be protruding into the rear compartment or out the rear of the body. The tow eyes shall be painted chassis black.

Front Tow Hooks

Two (2) heavy duty painted front tow hooks shall be securely bolted to the front chassis frame rail extensions to allow towing (not lifting) of the apparatus without damage. They shall be mounted in the downward position. Tow hooks will be mounted inboard (horizontal) when used with a drop style frame extension.

Hydraulic Pump System

A fixed-displacement hydraulic pump system shall be provided to operate all outrigger and aerial functions as well as the chassis power steering system. This shared hydraulic system is desired because it heats the hydraulic fluid while driving to provide smoother operation to other systems in cold climate conditions, rather than utilizing a separate pump.

The hydraulic pump system shall allow the aerial system to be activated without having to shut down the water pump or reduce engine RPM's by a switch located on the cab within easy reach of the driver. A system "engaged" indicator light shall be provided on the activation switch. Engagement of the aerial circuit shall only be allowed with the transmission in the neutral or pump gear and the parking brake engaged.

The system's hydraulic pump shall be engine mounted and able to supply thirteen (13) gpm of hydraulic fluid at a maximum pressure of 3,000 psi. The hydraulic system shall normally operate between 1,000 and 2,500 psi. It shall have flow controls to protect hydraulic components and it shall incorporate a relief valve set at 2,800 psi to prevent over-pressurization.

DEF Tank

A diesel exhaust fluid (DEF) tank with a five (5) gallon capacity shall be provided.

The DEF tank shall include a heater fed by hot water directly from the engine block to prevent the DEF from becoming too cool to operate correctly per EPA requirements. The tank shall include a temperature sensor to control the heater control valve that controls the feed of hot water from the engine to the DEF tank heater.

A sender shall be provided in the DEF tank connected to a level gauge on the cab dash.

The tank shall be located on the left side below rear of cab.

Cab

The vehicle shall be distinguished by an all-welded aluminum and fully enclosed tilt cab. The cab shall be designed exclusively for fire/rescue service and shall be pre-engineered to ensure long life. It shall incorporate an integral welded substructure of high-strength aluminum alloy extrusions that creates an occupant compartment that is a protective perimeter. The end result is a distinctive structure that is aesthetically appealing, functionally durable, and characterized by increased personnel safety.

The cab shall be constructed from 3/16" minimum 3003 H14 aluminum alloy plate roof, floor, and outer skins welded to a high-strength 6063-T6 aluminum alloy extruded subframe. Wall supports and roof bows are 6061 T6 aluminum alloy. This combination of a high-strength, welded aluminum inner structure surrounded on all sides by load bearing, welded aluminum outer skins provide a cab that is strong, lightweight, corrosion-resistant, and durable.

The inner structure shall be designed to create an interlocking internal "roll-cage" effect by welding two (2) 3" x 3" x 0.188" wall-thickness 6063-T5 aluminum upright extrusions between the 3" x 3" x 0.375" wall-thickness 6061-T6 roof crossbeam and the 2.25" x 3" x 0.435" wall-thickness 6063-T6 subframe structure in the front. An additional two (2) aluminum upright extrusions within the back-of-cab structure shall be welded between the rear roof perimeter extrusion and the subframe structure in the rear to complete the interlocking framework. The four (4) upright extrusions -- two (2) in the front and two (2) in the rear -- shall be designed to effectively transmit roof loads downward into the subframe structure to help protect the occupant compartment from crushing in a serious accident. All joints shall be electrically seam welded internally using aluminum alloy welding wire.

The subframe structure shall be constructed from high-strength 6061-T6 aluminum extrusions welded together to provide a structural base for the cab. It shall include a side-to-side 3” x 1.5” .375 thick C-channel extrusion across the front, with 3/4” x 2-3/4” full-width crossmember tubes spaced at critical points between the front and rear of the cab.

The cab floor shall be constructed from 3/16” minimum 3003 H14 smooth aluminum plate welded to the subframe structure to give the cab additional strength and to help protect the occupants from penetration by road debris and under-ride collision impacts.

The cab roof shall be constructed from 3/16” minimum 3003 H14 aluminum treadplate supported by a grid of fore-aft and side-to-side aluminum extrusions to help protect the occupants from penetration by falling debris and downward-projecting objects. Molded fiberglass or other molded fiber-reinforced plastic roof materials are not acceptable.

The cab roof perimeter shall be constructed from 4” x 6-5/8” (4” x 6.625”) 6063-T5 aluminum extrusions with integral drip rails. Cast aluminum corner joints shall be welded to the aluminum roof perimeter extrusions to ensure structural integrity. The roof perimeter shall be continuously welded to the cab roof plate to ensure a leak-free roof structure.

The cab rear skin shall be constructed from 3/16” minimum 3003 H14 aluminum plate. Structural extrusions shall be used to reinforce the rear wall.

The left-hand and right-hand cab side skins shall be constructed from 3/16” minimum 3003 H14 smooth aluminum plate. The skins shall be welded to structural aluminum extrusions at the top, bottom, and sides for additional reinforcement.

The cab front skins shall be constructed from 3/16” minimum 3003 H14 smooth aluminum plate. The upper portion shall form the windshield mask, and the lower portion shall form the cab front. Each front corner shall have a full 9” outer radius for strength and appearance. The left-hand and right-hand sides of the windshield mask shall be welded to the left-hand and right-hand front door frames, and the upper edge of the windshield mask shall be welded to the cab roof perimeter extrusion for reinforcement. The cab front shall be welded to the subframe C-channel extrusion below the line of the headlights to provide protection against frontal impact

Cab Exterior

The exterior of the cab shall be 94” wide x 130” long to allow sufficient room in the occupant compartment for up to eight (8) fire fighters. The cab roof shall be approximately 101” above the ground with the flat roof option. The back-of-cab to front axle length shall be a minimum of 58”.

A rubber fenderette shall be provided in place of the standard fenderette. The rubber fenderette shall extend 2.75" out from the mounting point.

A large stainless steel cooling air intake grille with an open area of no less than 81% shall be at the front of the cab.

The cab windshield shall be of a two-piece replaceable design for lowered cost of repair. The windshield shall be made from 1/4” (0.25”) thick curved, laminated safety glass with a 75% light transmittance automotive tint.

A combined minimum viewing area of 2,561-sq. in. shall be provided. Forward visibility to the ground for the average (50th percentile) male sitting in the driver's seat shall be no more than 11 feet 7 inches from the front of the cab to ensure good visibility in congested areas.

Windshield Wipers

Two (2) opposed radial style windshield wipers with two (2) separate electric motors shall be provided for positive operation. The wipers shall be tested beyond the minimum SAE requirement to a total of 3.3 million cycles. The wipers shall be a wet-arm type with a one (1) gallon washer fluid reservoir, an intermittent-wipe function, and an integral wash circuit. Wiper arm length shall be approximately 20", and the blade length approximately 21". Each arm shall have a 90 degree sweep for full coverage of the windshield. The wipers shall be synchronized so as to wipe each windshield simultaneously.

Cab Mounts and Cab Tilt System

The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements. Mounting points shall consist of two (2) forward-pivoting points, one (1) on each side; two (2) intermediate rubber load-bearing cushions located midway along the length of the cab, one on each side; and two (2) combination rubber shock mounts and cab latches located at the rear of the cab, one (1) on each side.

An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one (1) on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation.

Safety flow fuses (velocity fuses) shall be provided in the hydraulic lift cylinders to prevent the raised cab from suddenly dropping in case of a burst hydraulic hose or other hydraulic failure. The safety flow fuses shall operate when the cab is in any position, not just the fully raised position.

The hydraulic pump shall have a manual override system as a backup in the event of an electrical failure. Lift controls shall be located in a compartment to the rear of the cab on the right side of the apparatus. A parking brake interlock shall be provided as a safety feature to prevent the cab from being tilted unless the parking brake is set.

The entire cab shall be tilted through a 42–45-degree arc to allow for easy maintenance of the engine, transmission and engine components. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab.

In the lowered position, the cab shall be locked down by two (2) automatic, spring-loaded cab latches at the rear of the cab. A "cab ajar" indicator light shall be provided on the instrument panel to warn the driver when the cab is not completely locked into the lowered position.

Cab Interior

The interior of the cab shall be an open design with an ergonomically designed driver area that provides ready access to all controls as well as a clear view of critical instrumentation.

The engine cover between the driver and the officer shall be a low-rise contoured design to provide sufficient seating and elbow room for the driver and the officer. The engine cover shall blend in smoothly with the interior dash and flooring of the cab. An all-aluminum subframe shall be provided for the engine cover for strength. The overall height of the engine enclosure shall not exceed 23” from the floor at each side and 27” in the center section. The engine cover shall not exceed 41” in width at its widest point.

The rear portion of the forward engine cover shall be provided with a lift-up door to provide easy access for checking and filling engine oil, transmission fluid and power steering fluid without raising the cab (a separate access panel shall be provided for the power steering when equipped with an X12 or X15 engine).

The engine cover insulation shall consist of 1/2” closed cell elastomeric compound foam with aluminum foil faced fiberglass fabric manufactured to specifically fit the engine cover. All edges and seams shall be sealed using aluminum foil faced fiberglass tape. The insulation shall meet or exceed DOT standard FMVSS 302-1 and V-0 (UI subject 94 Test).

All cab floors shall be covered with a black rubber floor mat that provides an aggressive slip-resistant surface in accordance with current NFPA 1901.

The rear engine cover area shall be covered with molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black with a pebble grain finish for slip resistance.

A minimum of 57.25” of floor-to-ceiling height shall be provided in the front seating area of the cab and a minimum of 55.25” floor-to-ceiling height shall be provided in the rear seating area. A minimum of 36” of seated headroom at the "H" point shall be provided over each fender well.

The interior side to side dimensions shall be 87" from wall padding to wall padding and 89.5" from door to door.

The floor area in front of the front seat pedestals shall be no less than 24" side to side by up to 25” front to rear for the driver and no less than 24" side to side by up to 27” front to rear for the officer to provide adequate legroom.

Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab.

All exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

The interior of the cab shall be insulated to ensure the sound (dba) level for the cab interior is within the limits stated in the current edition of NFPA 1901. The insulation shall consist of 2 oz. wadding and 1/4” (0.25”) foam padding. The padding board shall be backed with 1/4” (0.25”) thick reflective insulation. The backing shall be spun-woven polyester. Interior cab padding shall consist of a rear cab headliner, a rear wall panel, and side panels between the front and rear cab doors.

The vehicle shall use a seven-position tilt and telescopic steering column to accommodate various size operators. An 18” padded steering wheel with a center horn button shall be provided.

The driver and officer seat risers shall be welded to the main cab floor structure. Depending on the make and model of the seats, a storage compartment with a hinged door shall be provided in the risers.

The lower front cab steps shall be a minimum of 11.5” deep x 24” wide. The lower rear cab steps shall be a minimum 16” deep x 21” wide. The first step at the front and rear cab doors shall be no more than 24.0” above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The front and rear steps shall incorporate full width intermediate steps for easy access to the cab interior. The intermediate step at the front doors shall be approximately 6" deep (minimum). The intermediate step at the rear doors shall be approximately 10.75" deep (minimum). The step surfaces shall be aluminum diamond plate with a multi-directional, aggressive gripping surface incorporated into the aluminum diamond plate in accordance with current NFPA 1901.

A black grip handle shall be provided on the interior of each front door below the door window to ensure proper hand holds while entering and exiting the cab. An additional black grip handle shall be provided on the left and right-side windshield post for additional handholds.

Cab Doors

Four (4) side-opening cab doors shall be provided. Doors shall be constructed of a 3/16” minimum aluminum plate outer material with an aluminum extruded inner framework to provide a structure that is as strong as the side skins.

Front cab door openings shall be approximately 36” wide x 72.5” high, and the rear cab door openings shall be approximately 33.75” wide x 72.5” high. The front doors shall open approximately 85 degrees, and the rear doors shall open approximately 80 degrees.

The doors shall be securely fastened to the doorframes with full-length, stainless steel piano hinges, with 3/8” minimum diameter pins for proper door alignment, long life, and corrosion resistance. Mounting hardware shall be treated with corrosion-resistant material prior to installation. For effective sealing, an extruded rubber gasket shall be provided around the entire perimeter of all doors.

The front door windows shall provide a minimum viewing area of 518 sq. in. each. The rear door windows shall provide a minimum viewing area of 554 sq. in. each. All windows shall have 75% light transmittance automotive safety tint.

The door handles on the exterior of the cab shall be a pull type with vertical orientation. The handles shall be made with corrosion free material and have a black finish. Each exterior door handle shall have an integral keyed lock.

Recessed paddle-style door latches shall be provided on the interiors of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening as required by NFPA 1901. The rear cab door handles shall have a vertical orientation making them easily accessible from forward or rearward outboard seating positions. Each cab door shall have a manually operated door lock actuated from the interior of each respective door.

Cab Instruments and Controls

Cab controls shall be located on the cab instrument panel in the dashboard on the driver's side where they are clearly visible and easily reachable. Chassis operation switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided:

- Speedometer/Odometer
- Tachometer
- Engine hour meter
- Engine oil pressure gauge with warning light and buzzer
- Engine water temperature gauge with warning light and buzzer
- Transmission oil temperature gauge
- Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)
- Fuel gauge with low fuel indicator light
- Voltmeter
- Master battery/ignition switch (rocker with integral guard)
- Engine start switch (rocker)
- Heater and defroster controls with illumination
- Marker light/headlight control switch (rocker)
- Panel light dimmer switch (rocker)
- Self-canceling turn signal control with indicators
- Windshield wiper switch with variable speed and washer controls
- Pump shift control with green "pump in gear" and "o.k. to pump" indicator lights
- Parking brake controls with red indicator light on dash
- Automatic transmission shift console
- Electric horn button at center of steering wheel
- Master warning light switch
- Cab ajar warning indicator
- Air filter restriction indicator

Controls and switches shall be identified as to their function by backlit wording adjacent to each switch, or indirect panel lighting adjacent to the controls.

Electrical System

The cab and chassis system shall have designated electrical distribution areas. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An access cover shall be provided for maintenance access to the electrical distribution area. Circuit protection shall be provided by fuses, thermal reset breakers and / or solid-state controls.

A 6 place, constantly hot, and 6 place ignition switched fuse panel and ground for customer-installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference.

All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color-coded and functionally-labeled every 3" on the outer surface of the insulation for ease of identification and maintenance. The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather-resistant. All

harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion.

Daytime Running Lights

Two (2) dual rectangular chrome plated headlight bezels shall be installed on the front of the cab. The low beam headlights shall activate with the release of the parking brake to provide daytime running lights (DRL) for additional vehicle conspicuity and safety. The headlight switch shall automatically override the DRL for normal low beam/high beam operation.

Fast Idle System

A fast idle system shall be provided and controlled by a switch accessible by the driver. The system shall increase engine idle speed to a preset RPM for increased alternator output.

Cab Crashworthiness Requirement

The apparatus cab shall meet and/or exceed relevant NFPA 1901 load and impact tests required for compliance certification with the following:

Side Impact Dynamic Pre-Load per SAE J2422 (Section 5).

Testing shall meet and/or exceed defined test using 13,000 ft-lbs of force as a requirement. The cab shall be subject to a side impact representing the force seen in a roll-over. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed, and cab shall remain attached to frame.

Cab testing shall be completed using 13,776 ft-lbs of force **exceeding** testing requirements.

Quasi-static Roof Strength (proof loads) per SAE J2422 (Section 6) / ECE R29, Annex 3, paragraph 5.

Testing shall meet and/or exceed defined test using 22,046 lbs of mass as a requirement. Testing shall be completed using platen(s) distributed uniformly over all bearing members of the cab roof structure.

Cab testing shall be completed using 23,561 lbs of mass **exceeding** testing requirements. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and doors shall remain closed.

Additional cab testing shall be conducted using 117,336 lbs of mass **exceeding** testing requirements by **over five (5) times**. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and the doors shall remain closed.

Frontal Impact per SAE J2420.

Testing shall meet and/or exceed defined test using 32,549 ft-lbs of force as a requirement. The cab shall be subject to a frontal impact as defined by the standard. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed, and cab shall remain attached to frame.

Cab testing shall be completed using 34,844 ft-lbs. of force **exceeding** testing requirements.

Additional cab testing shall be conducted using 65,891 ft-lbs. of force **exceeding** testing requirements by **over two (2) times**.

The cab shall meet all requirements with the above cab crash worthiness.

A copy of a certificate or letter verifying compliance with the above performance by an independent, licensed, professional engineer shall be provided upon request.

For any or all of the above tests, the cab manufacturer shall provide either photographs or video footage of the procedure upon request.

Seat Mounting Strength

The cab seat mounting surfaces shall be third party tested and in compliance with FMVSS 571.207.

Seat Belt Anchor Strength

The cab seat belt mounting points shall be third party tested and in compliance with FMVSS 571.210.

ISO Compliance

The manufacturer shall ensure that the construction of the apparatus cab shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus cab that is built to the exact standards, meets the customer's expectations, and satisfies the customer's requirements.

Cab Roof

The cab shall have a flat roof (non-vista).

Logo Package

The apparatus shall have manufacturer logos provided on the cab and body as applicable.

Rear Cab Door Position

The cab rear doors shall be moved to the rear of the wheel opening. This door placement facilitates easier entry and egress by reducing the rear facing seat protrusion into the door opening.

Cab Door Locks

The cab shall have 1250 keyed door locks provided on the exterior entry doors to secure the apparatus.

Cab Door Panels

The inner door panels shall be made from 1/8" minimum aluminum plate painted multi-tone (to match cab interior paint) for increased durability. The cab door panels shall be split just below the handrail and incorporate an easily removable panel for access to the latching mechanism and window regulator for maintenance or service.

Cab Door Locks

Each cab door shall have a manually operated door lock actuated from the interior of each respective door. The exterior of each cab door shall be provided with a keyed lock integrated with the cab door handle.

Cab Front Door Windows
Full roll-down windows shall be provided for the front cab doors with manually operated worm gear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable.

Cab Rear Door Window(s)
Full roll-down window(s) shall be provided for the rear crew door(s) with manually operated worm gear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable.

Cab Door Style
The cab doors shall extend down to cover the lower step well.

Cab Door Reflective Material
Reflective Red/Lemon Yellow material striping shall be provided approximately 7.5" high on the lower cab door panels of an extended (non-barrier) door. The stripes shall run from the top outer corner to the bottom inside corner of the lower door area, forming a "A" shape when viewed from the rear. The reflective material shall meet NFPA 1901 requirements**.**

Door Handles
The door handles on the exterior of the cab shall be a pull type with vertical orientation. The handles shall be made with corrosion free glass reinforced nylon material and have a black finish. The handles shall have clearance for a gloved hand.

Each exterior door handle shall have an integral keyed lock.

Cab Steps
The lower cab steps shall extend 3.5" past the side of the cab to provide increased surface area.

Cab Mirrors
Two (2) Ramco model 6001MCR remote controlled polished aluminum mirrors shall be installed. The mirrors shall incorporate a top main section with a manually adjustable convex lower mirror. The adjustment of main sections shall be through dash switches. Location: mounted on front corners of cab.

Cab Canopy Window

There shall be a fixed window provided between the front and rear doors on the officer’s side of the cab. Window dimensions shall be 26.69"W x 24.5"H.

Front Mud Flaps
Black linear low-density polyethylene (proprietary blend) mud flaps shall be installed on the rear of the cab front wheel wells. The design of the mud flaps shall have corrugated ridges to distribute water evenly.

Handrails

Cab door assist handrails shall consist of two (2) 1.25” diameter x 18” long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer door openings on each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2” from the mounting surface to allow a positive grip with a gloved hand.

Rear Cab Wall Construction

The rear cab wall shall be constructed with the use of 3/16" aluminum diamond plate interlocking in aluminum extrusions.

Cab Wheel Well

The cab wheel well shall be increased in size to provide additional clearance for larger tires. The fender trim shall be adjustable in and out to better accommodate various wheel / tire offsets.

Receptacle Mounting Plate

A mounting plate shall be provided for the battery charger receptacle, battery charger indicator and if applicable the air inlet, etc. The plate shall be constructed of 14 gauge brushed finish stainless steel and be removable for service access to the receptacle(s) and indicator.

HVAC Control Location

Heating and air conditioning controls shall be located in the center dash area.

Air Conditioning

An overhead air-conditioner / heater system with a single radiator mounted condenser shall be supplied.

The unit shall be mounted to the cab interior headliner in a mid-cab position, away from all seating positions. The unit shall provide fourteen (14) comfort discharge louvers, eight (8) to the back area of the cab, six (6) to the front area of the cab including one (1) each side outboard in the forward overhead console. These louvers will be used for both AC and heated air delivery. Two (2) additional large front louvers shall be damper controlled to provide defogging and defrosting capabilities to the front windshield as necessary.

The unit shall consist of a high output evaporator coil and heater core with one (1) high output dual blower for front air delivery, and two (2) high performance single wheel blowers for rear air delivery. For improved corrosion resistance the evaporator shall have a hydrophilic blue fin coating.

The control panel shall actuate the air-distribution system using electric actuators. The control panel shall allow blended airflow to both the comfort air vents and defrost vents. Separate three-speed blower switches shall be provided to independently control air speed for the front and rear blowers.

The condenser shall be radiator mounted and have a minimum capacity of 65,000 BTUs and shall include a receiver drier.

Performance Data: (Unit only, no ducting or louvers)

- AC BTU: 55,000
- Heat BTU: 65,000
- CFM: 1300 @ 13.8V (All blowers)

The compressor shall be a ten-cylinder swash plate type Seltec model TM-31HD with a capacity of 19.1 cu. in. per revolution.

The system shall be capable of cooling the interior of the cab from 100 degrees ambient to 75 degrees or less with 50% relative humidity in 30 minutes or less.

Seat Cover Material
All seats shall have vinyl seat cover material.

Seat Fabric Color
All seats shall be black in color.

Seating Capacity Tag
A tag that is in view of the driver stating seating capacity of five (5) personnel shall be provided.

SCBA Bracket SmartDock
An IMMI SmartDock Gen2 SCBA storage bracket shall be provided. The SmartDock is a strap-free docking station that offers single-motion SCBA insertion and hands-free release when the firefighter stands up to exit the seat. SmartDock has undergone extensive testing to ensure that it meets or exceeds industry standards. When evaluated to the NFPA 1901 Standard for Automotive Fire Apparatus, SmartDock met requirements for retaining both the cylinder and the pack in dynamic testing.

Location: officer's seat, inboard driver's side rear wall, inboard officer's side rear wall, rear facing officer's side.

Seat Belt Extender
ReadyReach seat belt extenders shall be provided. The extender shall include an arm that places the shoulder belt D-loop in a closer, easier to reach location.

The extenders shall be provided for the driver's seat, officer's seat, inboard driver's side rear wall, inboard officer's side rear wall, rear facing officer's side seat.

Cab Seats
All cab seats shall be Valor brand.

Seat, Driver
A USSC Valor P1A air suspension seat shall be supplied for the driver’s position.

Features shall include:

- Dymetrol® Active suspension
- Low-profile air suspension
- 2.75 Suspension stroke
- 350 lb. capacity
- Fore and aft adjustable tracks with 6-inches of travel
- Rotational knob for infinitely adjustable lumbar
- Adjustable seat backrest
- Integral headrest

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Seat, Officer

A USSC Valor fixed SCBA seat shall be supplied for the officer's position in front of the cab.

Features shall include:

- 95-Degree back angle
- Fixed headrest
- Magnetic SCBA harness securement

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Seat, Rear Facing

Rear facing USSC Valor fixed SCBA seat officer's side.

Features shall include:

- 95-Degree back angle
- Fixed headrest
- Magnetic SCBA harness securement

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Seat, Rear Wall

Two (2) USSC Valor SCBA seat backs and a two (2) person bench style seat bottom with a single cushion shall be mounted on the rear wall of the cab. Each side of the seat riser shall be angled, providing sufficient leg room while entering and exiting the cab.

Features shall include:

- Fixed headrest
- Magnetic SCBA harness securement
- Bench cushion shall be constructed of high-density foam with a heavy duty wear resistant material.

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Medical Storage Cabinet Finish

The interior of the medical cabinet(s), including shelves and trays, shall match the interior of the cab.

Medical Cabinet

There shall be one (1) medical storage cabinet provided at the driver's side wheel well of the cab with interior access. The medical cabinet shall be constructed of 1/8" smooth aluminum plate.

The medical cabinet dimensions shall be 45" high x 21" wide x 24" deep interior.

Three (3) vertically adjustable shelves shall be provided and installed in the medical cabinet. The shelves shall be constructed of 1/8" smooth aluminum plate. Each shelf shall have a 1" front for added strength and reinforcement. The shelves shall be sized to the interior dimensions of the medical cabinet. The shelves shall be mounted with extruded aluminum adjustable shelf tracking attached to the cabinet walls and the shelves to be secured with aluminum brackets to the tracks to allow for vertical height adjustment. As necessary a 3/4" x 2-3/4" aluminum extrusion shall be mounted to the underside of the shelves to provide additional reinforcement as needed.

There shall be a black cargo netting provided to secure contents.

Storage Under Bench Seat

There shall be two (2) hinged doors provided; one (1) each side of the seat riser enabling access to store equipment below the rear wall bench seat.

Cab Interior Padding Color

Cab interior padding to be black color. Includes ceiling, side, and rear walls as applicable.

Sun Visors

Lexan sun visors shall be provided for the driver and officer matching the interior trim of the cab and shall be flush mounted into the underside of the overhead console.

Air Horn Lanyard

There shall be a "Y" style lanyard mounted in the center of the cab that allows the driver and officer to operate the air horns. The lanyard shall activate an electrical air switch.

Mounting Plate on Engine Cover

An equipment mounting plate shall be provided between the driver and officer on the chassis engine cover. The plate shall be mounted to the engine access door spaced approximately 1/2" up to provide clearance for equipment mounting hardware. The plate shall be constructed of 3/16" aluminum plate and have a swirl finish.

Trim, Rear Engine Cover

The rear portion of the engine cover shall have an overlay of aluminum diamond plate installed to provide additional wear resistance.

Engine Cover

The engine cover shall blend in smoothly with the interior dash and flooring of the cab. The upper left and right sides shall have a sloped transition surface running from front to rear providing increased space for the driver and officer.

The engine cover and engine service access door cover shall be molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black and feature a pebble grain finish for slip resistance.

Cup Holder / Storage Tray

A cup holder and tray assembly shall be provided on the cab engine cover between the driver and officer. The tray shall be approximately 14" wide x 10" long x 1.5" tall and constructed from .125" aluminum plate. The top edge of the tray sides shall have a .5" lip and the front corners of the tray shall be tapered for dash access. The two (2) cup holders shall be constructed from 3.5" diameter pipe approximately 2.5" tall and be located one each side at the rear corners of the tray. The assembly shall be painted to match the cab interior color.

Overhead Console

An overhead console shall be provided in the front of the cab for the driver and officer. The areas in front of the driver and officer shall be removable panels that can be used for switches and other electrical items. The entire overhead console shall be hinged for service access.

The center of the overhead console shall have a lowered area for mounting up to three (3) electrical components like siren heads, directional bar controllers, etc.

The overhead console shall be constructed of aluminum smooth plate painted to match the cab interior. The console shall be installed using stainless steel fasteners.

Rear Engine Cover

The rear engine cover shall be provided with a reduced profile for increased legroom on the forward-facing rear inboard seats.

Cab Dash - Low Profile Severe Duty

The driver side and center dash shall be constructed from cast aluminum for durability and long life.

The driver side cast aluminum dash shall enclose the instrument cluster.

The center dash area shall be a low-profile design to provide optimal forward visibility. The driver and officer sides shall be angled for ergonomic access and designed for either a color display or switches. Access panels shall be provided on the top, front and officer’s side for easy service access.

The officer side dash shall be low profile and constructed from .125" smooth aluminum plate. A service access panel shall be provided on the top surface.

The driver, center and officer side dash shall be painted to match the cab interior.

The lower kick panels below the dash to be constructed from .125 aluminum plate painted to match the cab interior. The panels shall be removable to allow for servicing components that may be located behind the panels.

Cab Insulation Package

The cab shall be insulated to mitigate noise and ensure maximum cooling/heating capacity. The insulation package shall include 1" Polyester foam with Mylar facing for the front wall, rear wall, side walls, and ceiling, Reflectex (or equal) inside each cab door and 1" closed cell foam insulation below the front and rear facing seat risers.

Cab Dome Lights

A TecNiq LED model E12-WB0RP-1 dome light assembly with six (6) white LED, six (6) red LED, white lens and black bezel shall be provided. The white light activates with appropriate cab door and light assembly switch, the red light activates with light assembly mounted switch only.

There shall be two (2) mounted in the front of the cab, one (1) in the driver and one (1) in the officer ceiling.

There shall be two (2) mounted in the rear of the cab, one (1) in the driver side and one (1) in the officer side ceiling.

Push-Button Switch

A heavy-duty metal push-button switch shall be installed on the officer's side switch panel to operate the Q2B siren brake.

A heavy-duty metal push-button switch shall be installed on the officer`s side switch panel to operate the Q2B siren.

Auto-Eject Inlet Receptacle

The inlet receptacle shall be a Kussmaul 20-amp NEMA 5-20 Super Auto-Eject #091-55-20-120 with a cover. The Super Auto-Eject receptacle shall be completely sealed and have an automatic power line disconnect.

The receptacle shall be located outside the driver's door next to handrail and the cover color shall be Yellow.

Horn Button Switch

A two (2) position rocker switch shall be installed in the cab accessible to the driver and properly labeled to enable operator to activate the OEM traffic horn or Federal Signal Q2B siren from the steering wheel horn button.

English Dominant Gauge Cluster

The cab's operational instruments shall be located in the dashboard on the driver's side of the cab and shall be clearly visible. The gauges in this panel shall be English dominant and shall be the following:

- Speedometer with odometer
- Tachometer with integral hour meter
- Engine oil pressure gauge with warning light and buzzer
- Engine water temperature gauge with warning light and buzzer
- Fuel gauge with low fuel indicator light
- Voltmeter
- Air filter restriction indicator
- Transmission oil temperature gauge

- Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)
- Cab ajar warning indicator

This panel shall be backlit for increased visibility during day and nighttime operations.

Radio Speakers Additional Pair

An additional pair of radio speakers shall be supplied.

Rear speakers mounted in rear headliner. Speakers shall be 5-1/4" diameter.

Headlights

The front of the cab shall have four (4) headlights. The headlights shall be mounted on the front of the cab in the lower position.

Air Compressor

A Kussmaul model 091-9B-1, 120V air compressor shall be installed.

The air compressor shall be powered by a 120-volt inlet receptacle and has an output of .76 cfm at 100 psi. A pressure switch senses the system pressure and operates the compressor whenever the pressure in the air brake system drops below a pre-determined level.

12 Volt Outlet

A plug-in type receptacle for handheld spotlights, cell phones, chargers, etc. shall be installed driver side dash. The receptacle shall be wired battery hot.

Antenna Base

There shall be a Tessco P/N 90942 universal antenna base mounted on the cab roof with a weatherproof connector. The antenna base shall be NMO Motorola Style (equivalent to a MATM style) with RG58U coax cable. The antenna shall be located driver side forward with coaxial cable terminating at the center of the dashboard, officer side forward with coaxial cable terminating at the center of the dashboard.

Battery Charger Location

The battery charger shall be located behind the driver's seat.

Air Compressor Location

The air compressor shall be located behind the officer's seat.

Battery Charger

A 20-amp battery charger with remote mounted LED display shall be installed.

A fully automatic charging system shall be installed on the apparatus. The system shall have a 120-volt, 60 hertz, 7-amp AC input with an output of 20 amps 12 volts DC. The battery charging system shall be connected directly to the shoreline to ensure the batteries remain fully charged while the vehicle is in the fire station or firehouse.

The system shall include a remote charging status indicator panel. The panel shall consist of two (2) LED lights to provide a visual signal if battery voltage is good or drops below 11.5 volts. The microprocessor shall be continuously powered from the battery to provide the charge status.

DPF Regeneration Override

A momentary override switch shall be provided for the Diesel Particulate Filter (DPF) regeneration. The switch will inhibit the regeneration process until the switch is reset or the engine is shut down and restarted. The switch shall be located within reach of the driver.

Cab Headlights

FireTech model FT-4x6-4KIT LED headlights shall be provided. The headlights shall include low beam, high beam, elliptical beam and an integrated halo ring park lamp. When not equipped with separate daytime running lights, the low beam headlights shall activate with the release of the parking brake for additional vehicle conspicuity and safety.

Riser Height Compartment Lighting

One (1) EON LED light shall be provided to illuminate the interior of the bench seat riser on the rear wall of the cab. The light(s) shall be wired through the compartment door switch or rocker switch as applicable if equipped with cargo nets.

Cab Doorstep Area Lighting

There shall be eight (8) clear TecNiq model D07 LED lights provided to illuminate the cab step well areas. Two (2) lights shall be located at each door area, one (1) above each step. The lights shall have polished stainless-steel housing. The lights shall be activated by the cab door ajar circuit.

Cab Turn Signals

A pair of TecNiq LED (Light Emitting Diode) turn signal lights with clear lens shall be installed on the front of the cab. The strip type lights shall be 1.25" high x 15" long and be mounted in a polished cast aluminum housing between the quad bezels.

Radio

The apparatus cab shall be equipped with an Aptiv model PP105221 heavy duty AM/FM/BT/Weather band stereo receiver. The unit shall include integral Bluetooth, front auxiliary input, and front USB port.

Two (2) 5-1/4” radio speakers and antenna shall be supplied and mounted in the padding adjacent to driver and officer seats. A Bluetooth microphone PP604240 shall be installed near the driver.

The receiver unit shall be suppressed from engine noise to provide clear sound through the speakers.

Location: center overhead.

Cab Dual USB Charger Socket

A Kussmaul model 091-264-N, dual port outlet. Includes (1) USB-C and (1) USB-A NGR charger sockets for cell phones, chargers, etc. shall be installed driver side dash, officer side dash. The receptacle shall be wired battery hot.

USB Dual Port 091-264-N Specifications:

Input: 10 To 30 VDC (10 To 32 VDC Absolute Min./Max.

Output:4.8 to 5.2 VDC, 4.8 Amps Max

Indicator: Device Powered: Blue LED

Aerial Body

The apparatus body shall include a single, pumper-sized hosebed with a minimum volume of 48 cubic feet of usable space and a minimum length (fore-aft) of 140" for the storage of hose. Split hosebeds which require making and/or breaking hose connections to deploy and/or reload the full hose load are not acceptable because the extra time required to perform these operations would be detrimental to the efficient performance of the apparatus. Hosebeds which are less than 140" in length are not acceptable because the extra number of hose folds involved to load the hose would take extra space and require extra effort. The hosebed shall be designed to permit the deployment of hose from the rearmost portion of the body while the vehicle is in motion without raising the aerial ladder from its stored position. Hosebeds which deploy hose from a position partway along the side of the body are not acceptable because of the possibility of snagging the hose or a hose coupling on the aerial ladder turntable or on a protruding portion of the body. The hosebed shall be designed to allow manual reloading of the hose from the rear, top, and side without raising the aerial ladder from its stored position. These requirements are deemed essential to the effective operation of the apparatus when pumper operations are required.

The body design shall have a rescue-style configuration with 26" deep lower compartments and 23/24" deep upper compartments that provide a total of 170.95 cu. ft. of storage. The cubic footage shall not include ladder tunnels or the hosebed.

The body design shall be modular to permit easy repair and remounting. An extruded aluminum body is required to provide a strong, lightweight, corrosion-resistant vehicle.

Body Construction

The apparatus body shall be constructed entirely of aluminum extrusions with interlocking aluminum plates. A modular aluminum body is required due to the high strength-to-weight ratio of aluminum, its corrosion resistance, its ease of repair, and its light weight for increased equipment carrying capacity.

The interlocking body framework shall be constructed from beveled 6061-T6 and 6063-T5 extrusions electrically seam welded both internally and externally at each joint using 5356 aluminum alloy welding wire.

All horizontal surfaces, running boards, rear step, and the vertical rear body surface shall be constructed from aluminum diamond plate.

Body Substructure

The body substructure shall be constructed of aluminum extrusions. Body designs that incorporate steel substructures connected to aluminum compartments are not as corrosion- resistant and are not acceptable.

Body substructure crossmember extrusions shall be at the front of the body and ahead of the rear wheel well. The extrusions shall be 3” x 3” 6061-T6 aluminum with 3/8” minimum wall thickness. A solid 3” x 3” ”I-beam” section aluminum extrusion shall be provided the full width of the body over the rear wheel well. The crossmembers shall be designed to support the compartment framing and shall be welded to 1-3/16” x 3” solid 6063-T5 aluminum frame sill extrusions. The frame sill extrusions shall be shaped to contour with the chassis frame rails and shall be protected from contact with the chassis frame rails by 5/16” x 2” fiber-reinforced rubber strips to prevent wear and galvanic corrosion caused when two dissimilar metals come in contact.

Body Mounting System

The body shall be attached to the chassis frame rails with a series of 5/8” diameter steel U-bolts. The U-Bolt system shall be used to allow easy removal of the body for major repair or disassembly. Body designs that weld the body to the aerial torque box or to the chassis frame rails are not acceptable because of the stress imposed on the vehicle during road travel and aerial operations.

Water Tank Mounting System

The water tank shall be mounted on an extruded aluminum framework. The booster tank mounting system shall utilize a floating design to reduce stress from road travel and vibration. To maintain a low vehicle center of gravity, the water tank bottom shall be mounted within 5” of the frame rail top. Designs that store ground ladders under the water tank and raise the center of gravity of the vehicle shall not be acceptable.

The body design shall allow the booster tank to be completely removable without disturbing or dismounting the apparatus body structure. An extruded aluminum cradle covered with rubber shock pads and corner braces shall support the tank.

Stabilizer Openings

Directly behind the rear wheel well opening on each side shall be body openings for aerial stabilizers. The openings shall be framed in aluminum extrusions and fitted with removable panels for service access to the backside of the stabilizer extension rods.

Side Aerial Access Staircase

A single access staircase to the aerial ladder turntable shall be supplied on the driver’s side of the apparatus. The staircase shall incorporate a pocket-style drop-down step in the body to reduce the ground-to-staircase step height when the unit is supported on the stabilizers. The angled staircase shall be supplied with extruded aluminum handrails on both sides of the staircase frame.

Access steps shall be mounted in accordance with current NFPA requirements and shall not exceed a maximum stepping height of 18”. The top surface of the step shall have a minimum of 35 sq. in. and shall have an aggressive multi-directional, slip-resistant surface. Access steps shall be able to support up to 500 lbs. Steps shall be located to provide a minimum of 8" clearance between the leading edge of the step and any obstruction.

Rear Body Design

The rear body shall be designed to provide ground ladder storage, hose deployment, and service access to aerial components. A horizontally hinged door in the center of the rear body shall provide access to the lower turntable. An access door on each side of the service door shall provide storage for ladders and pike poles. The area under the hosebed shall provide additional storage for ground ladders. The ground ladder storage locations on the rear body shall be supplied with doors. All rear access doors shall match the rear body finish.

Fuel Fill Location

The fuel fill position shall be located at the rear of the apparatus next to the waterway inlet. The fuel tank filler neck shall be located behind a hinged door that is labeled ''Diesel Fuel Only''.

Body Top

Removable embossed diamond plate around the aerial turntable shall be supplied for top service access to check the aerial hydraulic oil level and to remove the oil tank top service panel when needed.

Hosebed Construction

A single, continuous hosebed with no chutes shall be supplied on the right-hand side of the body. The hosebed shall contain 48 cubic feet of useable space for the storage of hose. The hosebed shall measure 26” high x 23” wide x 140” long (fore-aft) to allow the use of large-diameter supply hose with a minimum number of hose folds. Shorter hosebeds shall not be acceptable as shorter hosebeds are harder to load due to the increased number of folds and dutchman.

The hosebed compartment deck shall be constructed entirely from maintenance-free, extruded aluminum slats. The slats shall have an anodized rounded ribbed top surface. The slats shall be of alternating widths -- one (1) approximately 3/4” minimum high x 7.5” wide and the other approximately 3/4” minimum high x 2.75” wide -- and shall be riveted into a one-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose. The hosebed compartment shall be free of sharp edges and projections to prevent hose damage. The compartment deck design shall incorporate a provision for the installation of adjustable hosebed dividers.

The hosebed sides shall consist of 3/16” minimum 3003 H14 smooth aluminum plate welded to a perimeter frame constructed of 3” x 3” x 3/16” minimum heavy-walled 6063-T5 aluminum extrusions for rigidity.

Compartment Construction

All compartment walls and ceilings shall be constructed from 1/8” minimum formed aluminum 3003 H14 alloy plate. Each compartment shall be modular in design and shall not be part of the body support structure.

Compartment floors shall be constructed of 3/16” minimum aluminum diamond plate welded in place. Compartment floors shall be supported by either 1.5” x 3” x 1/8” minimum walled aluminum extrusions or .5” x 3” aluminum flatbar. The compartment seams shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation. External compartment tops shall be constructed of 1/8” minimum embossed aluminum diamond plate. Service access shall be provided to the main body wiring harnesses.

The compartment interior walls and ceiling shall be natural finish aluminum to provide a long-lasting, maintenance-free surface.

Compartment Sizes

The approximate compartment sizes and locations shall be as follows:

LeftSide:

There shall be one (1) compartment (L1) behind the pump module. The compartment shall be approximately

60” wide x 31” high x 24” deep (upper) and 60” wide x 26” high x 26” deep (lower) and contain approximately 49.3 cubic feet of storage space. The door opening shall be approximately 60” wide x 61” high.

There shall be one (1) compartment (L2) over the rear wheels. The compartment shall be approximately 40.5” wide x 31” high x 24” deep and contain approximately 17.44 cubic feet of storage space. The door opening shall be approximately 40.5” wide x 31” high.

There shall be one (1) compartment (L3) over the rear wheels. The compartment shall be approximately 40.5” wide x 17” high x 21” deep (upper) and 40.5” wide x 14” high x 24” deep (lower) and contain approximately 16.24 cubic feet of storage space. The door opening shall be approximately 40.5” wide x 31” high.

There shall be one (1) compartment (L4) behind the rear stabilizer. The compartment shall be approximately 26” wide x 31” high x 24” deep (upper) and 26” wide x 26” high x 26” deep (lower) and contain approximately 21.36 cubic feet of storage space. The door opening shall be approximately 26” wide x 61” high.

RightSide:
There shall be one (1) compartment (R1) behind the pump module. The compartment shall be approximately 60” wide x 31” high x 23” deep (upper) and 60" wide x 26" high x 26" deep (lower) and contain approximately 48.23 cubic feet of storage space. The door opening shall be approximately 60” wide x 61” high.

There shall be one (1) compartment (R2) behind the rear wheels. The compartment shall be approximately 47” wide x 26” high x 26” deep and contain approximately 18.38 cubic feet of storage space. The door opening shall be approximately 47” wide x 26” high.

Handrails
Access handrails shall be provided at all step positions, including, but not limited to, the rear tailboard. All body handrails shall be constructed of maintenance-free, corrosion-resistant extruded aluminum. Handrails shall be a minimum of 1.25” diameter and shall be installed between chrome end stanchions at least 2” from the mounting surface to allow for access with a gloved hand. The extruded aluminum shall be ribbed to assure a good grip for personnel safety.

The handrails shall be installed as follows:

• Two (2) 48” handrails, one (1) on each side of the aerial access staircase

Steps, Standing, and Walking Surfaces
The maximum stepping distance shall not exceed 18”, with the exception of the ground-to-first step distance, which shall not exceed 24”. The maximum ground-to-first step distance shall be maintained when the stabilizers are deployed by the use of an auxiliary set of steps installed at the aerial access staircase. All steps or ladders shall sustain a minimum static load of 500 lbs. without deformation as outlined in the current edition of NFPA 1901.

All exterior steps shall be designed with a minimum slip resistance of 0.52 when tested wet using the Brungraber Mark II tester in accordance with the manufacturer's instructions.

Apparatus Warning Labels

A label shall be supplied on the rear body to warn personnel that riding in or on the rear step is prohibited as outlined in the current edition of NFPA 1901.

A label shall be applied to both sides of the apparatus and the rear to warn operators that the aerial is not insulated.

ISO Compliance

The manufacturer shall ensure that the construction of the apparatus aerial body shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus aerial device that is built to the exact standards, meets the customer's expectations, and satisfies the customer's requirements.

Rear Body Panels

The rear body panels shall be smooth 1/8" un-painted aluminum plate to facilitate rear body striping. The panels shall be bolt-on for a clean appearance and easier repair in the event of damage.

Triple Crosslay Hosebed

Three (3) crosslay hosebeds shall be provided at the front area of the body. Each of the three (3) crosslay sections shall have a capacity for up to 200' of 2.0" double-jacket fire hose single stacked and preconnected to the pump discharge. The crosslay decking shall be constructed entirely of maintenance-free 3/4" x 2-3/4" hollow aluminum extrusions.

Stainless steel rollers with nylon guides set in aluminum extrusions shall be installed horizontally and vertically on each end of the crosslay to allow easy deployment of the hose and help protect the body paint.

Dunnage Pan

A dunnage pan constructed of 3/16" minimum aluminum treadplate shall be located rearward of the crosslays. The dunnage pan shall be sized to maximize available storage space.

Outrigger Covers

Two (2) piece outrigger covers constructed of .125'' aluminum tread plate shall be provided for the jack leg openings. One piece of the cover shall be sized to cover just the extending outrigger in order to require a minimal amount of set-up space. The second piece of the cover shall be fixed and mounted to the body to cover the remaining outrigger opening.

Rear Pike Pole/Attic Ladder Storage

A storage compartment shall be provided at the rear of the body for six (6) pike poles and one (1) attic ladder with feet. The storage area shall be labeled for two (2) 6' poles, two (2) 8' poles, two (2) 10' poles and one (1) 10' attic ladder. The pike poles and attic ladder shall be secured by a hinged aluminum plate door that matches the rear body finish.

Hose Bed Depth

A hose bed approximately 26" deep x 23" wide x 140" long shall be provided. The hose bed shall hold up to 800’ of 5" LDH and 300-400’ of 2.5" or 3" DJ hose.

Auxiliary Ground Pads

Two (2) auxiliary ground pads shall be provided. The pads shall be 24” x 24” x 1/2” thick aluminum plate with a 20-degree formed handle with cutout for hand hold. The pads shall be stored in brackets that are welded below the body.

Single Compartment Door

A single compartment door shall be constructed using a box pan configuration. The outer door pan shall bevel and shall be constructed from 3/16” minimum aluminum plate. The inner door pan shall be constructed from 3/32" (0.090”) smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.

The compartment door shall have a 1” x 9/16” (1” x 0.43”) closed-cell “P” EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle a with #459 latch shall be provided on the door. The 4-1/2” (4.5”) D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4” (0.25”) rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have a gas shock-style hold-open device.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): L4

Single Compartment Door

A single compartment door shall be constructed using a box pan configuration. The outer door pan shall bevel and shall be constructed from 3/16” minimum aluminum plate. The inner door pan shall be constructed from 3/32" (0.090”) smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.

The compartment door shall have a 1” x 9/16” closed-cell “P” EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle a with #459 latch shall be provided on the door. The 4-1/2” (4.5”) D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4” (0.25”) rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have gas shock-style hold-open devices.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): L2, L3

Double Compartment Door

Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall bevel and shall be constructed from 3/16” minimum aluminum plate. The inner door pans shall be constructed from 3/32" smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 90-degree bend to form an integral drip rail.

The compartment doors shall have a 1” x 9/16” closed-cell “P” EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle a with #459 latch shall be provided on the primary door. The 4-1/2” D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The secondary door shall have a dual stage rotary latch with a 750 lb rating to hold the door in the closed position. The latch shall be mounted at the top of the door. A stainless-steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latch. The paddle handle shall be connected to the rotary latch by a 5/32" diameter rod. Cable actuation shall be deemed unacceptable due to the potential for cable stretch and slippage. The striker pin shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.

Double door latch to have latch brackets fabricated from .125 aluminum smooth plate, installed with "PULL" tags #1032993 for left side and #1032294 for right side.

The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4” rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.

The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb rating and be mounted near the top of the door (when possible).

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): R2

Double Compartment Door

Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall bevel and shall be constructed from 3/16” minimum aluminum plate. The inner door pans shall be constructed from 3/32" (0.090”) smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 95-degree bend to form an integral drip rail.

The compartment doors shall have a 1” x 9/16” closed-cell ”P” EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle a with #459 latch shall be provided on the primary door. The 4-1/2” D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The secondary door shall have two (2) dual stage rotary latches, each with a 750 lb rating to hold the door in the closed position. The latches shall be mounted at the top and bottom of the door. A stainless-steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latches. The paddle handle shall be connected to the rotary latches by 5/32" (.156") diameter rods. Cable actuation shall not be deemed unacceptable due to the potential for cable stretch and slippage. The striker pins shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.

Double door latch to have latch brackets fabricated from .125 aluminum smooth plate, installed with "PULL" tags #1032993 for left side and #1032294 for right side.

The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4” (0.25”) rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.

The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb rating and be mounted near the top of the door (when possible).

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): L1, R1

Adjustable Shelf [Qty: 7]

There shall be aluminum adjustable shelves two (2) located in L1, one (1) located in L2, one (1) located in L3, two (2) located in L4, and one (1) located in R1.

The shelves shall be constructed of 3/16” minimum smooth aluminum plate. The shelves shall have a minimum 2” front and rear lips to accommodate optional plastic interlocking compartment tile systems and shall be capable of holding 100 lbs on compartments with tracks mounted on back wall (compartments up to approximately 12" deep) or shall be capable of holding 250 lbs with tracks mounted on forward and rearward walls.

The shelves shall be sized, width and depth, to match the size and location in the compartment.

Adjustable Tracks [Qty: 5]

Tracks shall be provided in the L1, L2, L3, L4, and R1 compartments for use with adjustable shelves and/or trays in non-transverse compartments. The tracks shall be vertical mounted and attached to the side and/or rear walls of the compartments.

Running board Suction Tray

A running board suction hose storage tray approx. 35"W x 10"D (9" to slats) shall be provided and located in the officer side running board.

The tray shall be recessed mounted and constructed of 1/8” minimum aluminum diamond plate (exterior) with a smooth surface interior. The bottom of the tray shall have removable aluminum slats and drain holes to allow water drainage from hose stored in the tray.

Roll-Out Tray

There shall be a floor mounted SlideMaster for generator provided in compartment R1 as forward as applicable. An interlock shall be provided on the roll-out tray.

Model #SM3-SP. Tray depth to be between 15" deep and 24" deep. The tray shall be sized in width and depth as applicable.

An Innovative Industries SlideMaster shall be provided for the tray for the ease of operation and long service life. A positive twist lock shall be provided to lock the tray in the stored position. The tray shall roll out approximately 100% from the stored position.

The capacity rating shall be 1000 pounds distributed load and 500 pounds end load at full extension.

Hose Bed Cover

A cover constructed of Black 18 oz. PVC vinyl coated polyester shall be installed over the apparatus hose bed. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 square inch.

The front edge of the cover shall be mechanically attached to the body. The sides of the cover shall be held in place with heavy duty Velcro strips running the length of the hose bed.

Rear Hose Bed Cover

A cover constructed of heavy-duty black nylon cargo netting shall be installed at the rear apparatus hose bed.

The bottom of the cargo netting shall be mechanically attached to the hose bed. The cover shall be attached to comply with the latest edition of NFPA 1901.

The cover shall secure the hose load at the rear open back of the hosebed and shall complement separate top cover of vinyl, diamond plate pr similar cover that secures top of body open areas over hose load.

Vinyl Crosslay Cover

A cover constructed of Black 18 oz. PVC vinyl coated polyester shall be installed on the crosslay. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 per square inch.

The cover shall be held in place across the top of the body by chrome snaps. The sides of the cover shall have integral flaps that extend down to cover the sides of the crosslay. The side flaps shall be secured in place to comply with the latest edition of NFPA 1901.

Running Board Tray Securing Strap

A heavy-duty black nylon strap with a stainless steel quick-release buckle shall be provided for the running board hose tray(s). The strap shall be attached to the inboard side of the tray as low as practical to allow cinching of strap for securing tray contents and shall not reduce the overall tray capacity.

Location: officer side running board.

Pump Module Frame

An extruded aluminum pump module shall be provided and located forward of the apparatus body. The pump module shall be constructed entirely of welded aluminum alloy extrusions and interlocking aluminum plates. The pump module framework shall consist of 1.5" x 3" x .188" wall, 1.5" x 3" x .375" wall with center web and 3" x 3" x .188" wall extrusions.

The pump module design and mounting shall be separate from the body to allow the pump module and body to move independently of each other in order to reduce stress from frame twisting and vibration.

Pump Module Mounting

The pump module shall be attached to the chassis using four (4) center bonded isolation mounts and a steel mounting frame. The isolation mounts shall be 2.75" diameter and mount to the chassis with two (2) 4" x 4" x .312" A36 steel angles.

Pump Access

A pump service access opening shall be provided at the front of the pump module.

Pump Module Running Boards

A running board suction hose storage tray "floating style" shall be provided and located in the (location to be specified).

The tray shall be "floating style" mounted and constructed of 1/8” minimum aluminum diamond plate (exterior) with a smooth sanded surface interior. The bottom of the tray shall have removable aluminum slats and drain holes to allow water drainage from hose stored in the tray. The tray shall have a 3" tapered front corner to protect the tray against debris. The tray shall be removable for the running board.

Stepping Surface

Each running board shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. The surface shall extend vertically from the diamond plate sheet a minimum of .125". Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4". Each running board shall be bolted on to the pump module and be easily removable for replacement in the case of damage.

Side Mount Pump Panels

The driver and officer side pump panels shall be constructed of 14 gauge stainless steel. Each panel shall have the ability to be removed from the module for easier access and for maintenance in the pump area.

Hinged Gauge Panel

The driver side stainless steel single gauge panel shall be positioned where it can be opened downward for access to gauges and other interior pump module mounted items. The gauge panel shall include latches to secure the panel in the closed position. Two (2) cable tethers shall be provided to hold the panel in the open position.

Pump Access Door

The officer side pump module shall have a three (3) piece panel, one (1) above the discharge outlets, one (1) encompassing the discharges and intakes and one (1) low for bleeder valves.

The upper two (2) pump panel sections shall have a vertical stainless steel piano type hinge with 1/4" pins along the forward edge of the pump module. The hinges shall be "staked" on every other knuckle to prevent the pin from sliding. The panels shall have push button style latches to secure the panels in the closed position. The upper panel shall have one (1) pneumatic shock to hold the panel in the open position.

Pump Panel Tags

Mechanically fastened color coded pump panel labels shall be supplied to be in accordance with NFPA 1901 compliance.

Special Label Pump Panel Tags

The pump panel tags shall be provided with special labeling as per customers' specifications.

Air Outlet

A 1/4" female air hose fitting shall be mounted with a 1/4" valve. The fitting and valve shall be connected to the air reservoir tank.

Location: driver's side pump panel.

Backboard Storage Compartment

A compartment shall be provided for storage of up to three (3) backboards above the pump panel area. The storage area is to be fully enclosed with a vertical hinged diamond plate access door provided at each side for easy access from both sides of the apparatus. The doors shall be equipped with glove box style latches.

Flex Joint

The area between the pump modules and body shall include a rubber flex joint.

Water Tank

A 490-gallon (U.S.) booster tank shall be supplied.

The booster tank shall be constructed of polypropylene material. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal.

The booster tank top, sides, and bottom shall be constructed of a minimum 1/2” thick black UV-stabilized copolymer polypropylene. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The tank cover shall be constructed of 1/2" thick polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40” apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions.

The tank shall have a combination vent and manual fill tower with a hinged lid. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter (subject to change for specific design applications). The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 1/4" thick removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.

The booster tank shall have two (2) tank plumbing openings. One (1) for a tank-to-pump suction line with an anti-swirl plate, and one (1) for a tank fill line. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank and be capable of withstanding sustained fill rates per the tank fill inlet size.

The sump shall be constructed of a minimum of 1/2" polypropylene. The sump shall have a minimum 3" N.P.T. threaded outlet for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3” above the inside floor.

The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength.

Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with an I.D. of 3" or larger that is designed to run through the tank. This outlet shall direct the draining of overflow water past the rear axle, thus reducing the possibility of freezing-up of these components in cold environments. This drain configuration shall also assure that rear axle tire traction shall not be affected when moving forward.

The booster tank shall undergo extensive testing prior to installation in the truck. All water tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale.

Each tank shall be weighed empty and full to provide precise fluid capacity. Each tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.

The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.

Tank capacity is 490 US gallons / 408 Imperial gallons / 1854 Liters.

Tank Fill, 2.5 Akron Valve

One (1) 2.5" pump-to-tank fill line having a manually operated 2.5" Akron valve. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times. The valve shall be controlled with a chrome handle.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Tank to Pump, 3" Akron Valve

One (1) manually operated 3" Akron valve shall be installed between the pump suction and the booster tank in order to pump water from the tank. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Foam Tank

A 10-gallon (U.S.) foam cell for Class A foam shall be supplied. The foam cell shall be integral to the water tank.

The integral tank top, sides, and bottom shall be constructed of black polypropylene material. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The copolymer polypropylene material shall be used for its high strength and corrosion resistance for a prolonged tank life.

The foam tank shall have a manual fill tower. The fill tower shall be constructed of 1/2" polypropylene. The capacity of the tank shall be engraved on the top of the fill tower lid. The fill tower shall be located in the forward area of the tank. The tower shall have a 1/4" thick removable polypropylene screen. Inside the fill tower, approximately 1.5” down from the top, there shall be an anti-foam fill tube that extends down to the bottom of the tank. A pressure vacuum vent shall be provided in the lid of the fill tower. The foam fill tower shall be removable to facilitate the cleaning of the foam tank.

The foam tank shall undergo extensive testing prior to installation in the truck. All foam tanks shall be tested and certified as to capacity. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.

Bracket Horizontal Ladder

The extension ladder mounting assembly shall consist of a 1/8” diamond plate boot bolted to the compartment top and a chrome plated handle to secure the ladder into the boot.

Location and type of ladder: over L1 for Little Giant model 17.

Ground Ladder Storage

Two (2) ground ladder storage areas shall be provided at the rear of the apparatus. The storage areas shall be located on one (1) each side of the aerial pedestal. The storage areas shall be vertical in design to allow the ladders to be stored on edge. Combined with a body or aerial mounted 14’ or greater ladder, they shall provide storage for up to 115’ of ground ladders in order to exceed the requirements of the current edition of NFPA 1901 for both aerial ladders and quints.

The vertical compartment under the left-hand side of the aerial ladder turntable shall be approximately 8.75” wide x 26.5” high x 205” deep and shall be accessible through a door at the rear of the apparatus. The bottom of this compartment shall be no more than 55” above the ground with the vehicle in the unloaded condition to allow easy removal of the ladders.

The vertical compartment under the right-hand side of the aerial ladder turntable shall be approximately 8.375” wide x 23.375” high x 205” deep and shall be accessible through a door at the rear of the apparatus. The bottom of this compartment shall be no more than 55” above the ground with the vehicle in the unloaded condition to allow easy removal of the ladders.

The ladders in the compartments shall be held captive top and bottom by aluminum tracks and shall slide on friction-reducing material. All ladders shall be removable individually without having to remove any other ladder.

The ladder rack shall hold: PEL3-35, PEL-28 and PRL-16.

Slide-Out Platform

A slide-out platform shall be provided integral with the driver side running board adjacent to the pump panel. The platform shall be 21" deep and shall be constructed of 1/8" minimum aluminum treadplate with a multi-directional, aggressive gripping surface. The platform shall utilize a maintenance-free slide system incorporating stainless steel shoulder bolts that slide in slotted heavy-wall aluminum angles. Notches shall be provided at each end of the slots to hold the platform in both the extended and retracted positions.

The NFPA pump throttle height requirement shall be measured from the top of the slide-out platform on all aerials and from the ground on side mounted pump operator panels on non-aerial apparatus.

Rear Slide-out Platform

The slide-out platform shall be 18" deep and shall be constructed of 1/8" aluminum tread brite. The stepping surface shall consist of a multi-directional, aggressive gripping surface incorporated into the tread plate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8". Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4". The platform shall be recessed into the rear of the apparatus body below the hosebed. The platform shall utilize a maintenance free slide system incorporating formed aluminum plate(s) and nylatron slide pads. A gas shock shall be provided to hold the platform in both the extended and retracted positions.

An assist handrail shall consist of one (1) 1-1/4" OD 6063T5 anodized aluminum tube mounted between chrome stanchions. The handrail shall be machine extruded with an integral ribbed surface to assure a good grip for personnel safety.

Mud Flaps

Black mud flaps shall be provided for the body wheel wells.

Side Body Platework

The painted aluminum smooth plate body side panels shall be flush with the supporting extrusions.

Anodize Aluminum Trim

An anodized aluminum trim shall be located at the bottom edge of all body compartment openings including pump enclosure with painted edge (as applicable). The trim shall provide added protection of the painted surface of the body when equipment is removed from the compartment.

Body Wheel Well

The body wheel well frame shall be constructed from 6063-T5 aluminum extrusion with a slot the full length to permit an internal fit of 1/8" (0.125") aluminum treadplate.

The wheel well trim fenderette shall be constructed from rubber fenderette and shall extend 2.5" out from the mounting point.

The wheel well liners shall be constructed of a minimum 3/16" (.187") composite material. The liners shall be bolt-on and shall provide a maintenance-free and damage-resistant surface.

Corner Guard

Diamond plate corner guard for the rear compartment face forward of the side facing staircase(s) constructed of (.063") aluminum treadplate. Guard shall wrap around corner.

Poly Rubrails

Rubrail assemblies shall be provided on the apparatus body/module and shall be constructed of 3-inch x 2 inches black U.H.M.W. polyethylene mitered 45 degrees at leading and trailing ends. The rubrails shall be bolted to the lower exterior edge of the apparatus using stainless steel hardware. Rubrail mounted lighting or other options shall be recessed into the poly rubrails to minimize damage. A strip of embossed diamond plate shall be provided on top surface of rubrail in stepping areas. The strip shall be mechanically attached and match the finish of the stepping surface.

SCBA Storage

Four (4) SCBA bottle storage compartments shall be provided. The compartments shall be 8" diameter by 25" deep and located two (2) each side in the body wheel well area.

Each SCBA bottle shall be held in place by a hinged cast aluminum door with a positive latch.

The inner SCBA storage tube shall be made of high strength polyethylene to provide additional protection to the surface of the SCBA bottles.

SCBA Strap

Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon webbing formed in a loop. The strap(s) shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.

Pump Rating

The fire pump shall be rated at 1500 GPM.

Fire Pump System

The pump shall be a midship mounted Waterous CSU 1500-2250 single stage centrifugal pump. The pump shall be mounted on the chassis frame rails and shall be split shaft driven.

The entire pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 psi (207 (MPa). All metal moving parts in contact with water shall be of high-quality bronze or stainless steel. The pump body shall be horizontally split in two (2) sections, for easy removal of impeller assembly including wear rings and bearings from beneath the pump without disturbing pump mounting or piping.

The pump impeller shall be hard, fine grain bronze of the mixed flow design and shall be individually ground and hand balanced. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body, and of wrap-around double labyrinth design for maximum efficiency.

The impeller shaft shall be stainless steel, accurately ground with a 2-3/4" diameter spline shaft and shall be rigidly supported at each end by oil or grease-lubricated anti-friction ball bearings for rigid and precise support. Bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. The remaining bearings shall be heavy duty, deep groove ball bearings in the gearbox and shall be splash lubricated. The pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of the gearbox.

Two (2) 6” diameter suction ports with 6” NST male threads and removable screens shall be provided, one each side. The ports shall be mounted one on each side of the midship pump and shall extend through the side pump panels. Inlets shall come equipped with long handle chrome caps.

Stuffing boxes shall be integral with the pump body and be equipped with two-piece glands to permit adjustment or replacement of packing without disturbing pump. Lantern rings shall be located at inner ends of stuffing boxes so that all rings of packing can be removed without removal of the lantern rings. Water shall be fed into stuffing box lantern rings for proper lubrication and cooling when pump is operating.

Discharge Manifold

The pump system shall utilize a stainless-steel discharge manifold system that allows a direct flow of water to all discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion.

Pump Shift

The pump shift shall be pneumatically controlled using a power shifting cylinder.

The power shift control valve shall be mounted in the cab and be labeled “PUMP SHIFT”. The apparatus transmission shift control shall be furnished with a positive lever, preventing accidental shifting of the chassis transmission.

A green indicator light shall be located in the cab and be labeled “PUMP ENGAGED”. The light shall not activate until the pump shift has completed its full travel into pump engagement position.

A second green indicator light shall be located in the cab and be labeled “OK TO PUMP”. This light shall be energized when both the pump shift has been completed and the chassis automatic transmission has obtained converter lock-up (4th gear lock-up).

Test Ports

Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump.

Pump Certification

The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. The pump shall be tested at the manufacturer’s facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in the current NFPA 1901.

The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.

A piping hydrostatic test shall be performed as outlined in current NFPA 1901.

The pump shall deliver the percentage of rated capacities at pressures indicated below:

- 100% of rated capacity at 150 psi net pump pressure

- 100% of rated capacity at 165 psi net pump pressure
- 70% of rated capacity at 200 psi net pump pressure
- 50% of rated capacity at 250 psi net pump pressure

A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-load governed speed of the engine.

A Certificate of Inspection certifying performance of the pump and all related components shall be provided at time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer's Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer.

Steamers, Flush+1

The pump 6" steamer intake(s) shall be mounted approximately 1" from the pump panel to back of cap when installed. The "Flush+1" dimension can vary + or - 1-1/4" or as practicable depending on the pump module width and options selected.

Location: driver's side, officer's side.

Manual Pump Shift Override

One (1) manual pump shift override shall be side panel mounted to engage the pump in the event of an air pressure failure. The pump shift shall be operated by a chrome handled push-pull cable.

Pump Seal Packing, Waterous

A pump packing shall be supplied with the pump and shall include stuffing boxes which shall be integral with the pump body and be equipped with two-piece glands to permit adjustment or replacement of packing without disturbing pump. Lantern rings shall be located at inner ends of stuffing boxes so that all rings of packing can be removed without removal of the lantern rings. Water shall be fed into stuffing box lantern rings for proper lubrication and cooling when pump is operating.

Manual Master Drain

A manual master drain valve shall be installed and operated from the driver side. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal.

The manual master drain valve shall have twelve (12) individually sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.

The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.

Pump Cooler

The pump shall have a 3/8" line installed from the pump discharge to the booster tank to allow a small amount of water to circulate through the pump casing in order to cool the pump during sustained periods of pump operation when water is not being discharged. The pump cooler line shall be controlled from the pump operator's panel by an Innovative Controls 1/4 turn valve with "T" handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag.

Trident Primer

A Trident air operated priming system shall be installed. The unit shall be of all brass and stainless-steel construction and designed for fire pumps of 1,250 GPM (4,600 LPM) or more. Due to corrosion exposure no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design with ¾" NPT connection to the fire pump.

The primer shall be mounted above the pump impeller so that the priming line will automatically drain back to the pump. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass "wye" type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

The system shall create vacuum by using air from the chassis air brake system through a two-barrel multi-stage internal "venturi nozzles" within the primer body. The noise level during operation of the primer shall not exceed 75 Db.

Air Flow Requirements

The primer shall require a minimum of 15.6 cubic foot per minute air compressor and shall be capable of meeting drafting requirements at high idle engine speed. The air supply shall be from a chassis supplied "protected" air storage tank with a pressure protection valve. The air supply line shall have a pressure protection valve set between 70 to 80 PSIG.

Primer Control

The primer control shall have a manually operated, panel mounted "push to prime" air valve. The valve shall direct air pressure from the air brake storage tank to the primer body. To prevent freezing, no water shall flow to and from the panel control. The primer shall be covered by a five (5) year parts warranty which shall be submitted upon request.

Left Intake 2.5" Akron Valve

One (1) 2-1/2" suction inlet with a manually operated 2-1/2" Akron valve shall be provided on the left side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2" NST female chrome inlet swivel, and shall be equipped with a chrome plated rockerlug plug with a retainer device.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

A 3/4” bleeder valve assembly will be installed on the left side pump panel.

Right Intake 2.5” Akron Valve

One (1) 2-1/2” gated suction inlet with a manual operated Akron valve shall be installed in the right-side pump panel with the valve body behind the panel. The valve control shall be located at the intake and shall visually indicate the position of the valve at all times.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2” NST female chrome inlet swivel and shall be equipped with a chrome plated rockerlug plug with a retainer device.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

A 3/4” bleeder valve assembly will be installed on the right-side pump panel.

Intake Pressure Relief

A18 Series - PRESSURE RELIEF VALVE - TFT’s pressure relief valve is adjustable from 50 to 250 psi (3 to 14 bar) with easy to see 25 psi (2 bar) increments. The aluminum casting is plastic impregnated, hard coat anodized, and TFT powder coat finished inside and out for maximum corrosion protection. Works with Darley, Waterous, or Hale bolt hole patterns for direct use on pump flanges.

Front Jump Line 1.5” Akron Valve

One (1) 1-1/2” pre-connect outlet with a manually operated Akron valve shall be supplied to the extended front bumper. The pre-connect shall consist of a 2” heavy duty hose coming from the pump discharge manifold to a 2” FNPT x 1-1/2” MNST mechanical swivel hose connection to permit the use of the hose from either side of the apparatus.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

An air blow-out valve shall be installed between the chassis air reservoir and the front jump line. The control shall be installed on the pump operator’s panel.

The discharge shall be supplied with a Class 1 automatic 3/4” drain valve assembly. The automatic drain shall have an all-brass body with stainless steel check assembly. The drain shall normally be open and automatically close when the pressure is greater than 6 psi.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Waterway 4” Discharge with 3” Akron Valve

One (1) 4” diameter discharge outlet with a handwheel operated Akron valve shall be connected from the pump to the aerial waterway.

The valve shall be an Akron 8840HD series with a bronze flat ball design for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the brass ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron Swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The handwheel valve control shall have the following features:

- Handwheel driven worm gear rotates a gear sector for smoother and easier operation under pressure.
- A 50:1 ratio
- 4” handwheel
- 12 1/2 turns for full open/close.
- Opening and closing speed complies with the current edition of NFPA.
- Portrait Position indicator which shows the position of the valve ball to meet NFPA 1901.

The valve controls and indicators shall be located at the pump operator panel.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Swivel Elbow, Polished Stainless Steel

There shall be a polished stainless steel swivel elbow provided for the front bumper discharge located on top of the bumper officer's side of center tray.

1.5” Single Crosslay Akron Valve [Qty: 2]

One (1) single crosslay discharge shall be provided at the front area of the body. The crosslay shall include one (1) 2” brass swivel with a 1-1/2” hose connection to permit the use of hose from either side of the apparatus.

The crosslay hose bed shall consist of a 2” heavy-duty hose coming from the pump discharge manifold to the 2” swivel. The hose shall be connected to a manually operated 2” Akron valve. The valve shall be an Akron 8800HD

series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: crosslay 1 & 2.

Single Crosslay 2.5" Akron Valve

One (1) single crosslay discharge shall be provided at the front area of the body. The crosslay shall have one (1) 2-1/2" mechanical swivel hose connection to permit the use of the hose from either side of the apparatus.

The crosslay hose bed shall consist of a 2-1/2" heavy-duty hose coming from the pump discharge manifold to the 2-1/2" swivel. The hose shall be connected to a manually operated 2-1/2" Akron valve. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: crosslay 3.

Left Panel 2.5" Discharge Akron Valve [Qty: 2]

One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be provided at the left-hand side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: left side discharge 1, left side discharge 2.

Right Panel 2.5" Discharge Akron Valve

One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be provided at the right-side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right side discharge 2.

Right Panel 3" Discharge Akron Valve

One (1) 3" discharge outlet with a handwheel operated Akron valve shall be provided at the right-side pump panel.

The valve shall be an Akron 8600HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless-steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The handwheel valve control shall have the following features:

- Handwheel driven worm gear rotates a gear sector for smoother and easier operation under pressure.
- A 50:1 ratio
- 4" handwheel
- 12 1/2 turns for full open/close.

• Opening and closing speed complies with the current edition of NFPA.
• Portrait position indicator which shows the position of the valve ball to meet NFPA 1901.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right side discharge 1.

IC Push/Pull Control

The apparatus pump panel shall be equipped with Innovative Controls Side Mount Valve Controls. The ergonomically designed ¼ turn push-pull T-handle shall be chrome-plated zinc with recessed labels for color-coding and verbiage. An anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated zinc panel-mounting bezel with areas for color-coding and/or FOAM and CAFS identification labels.

Bleeder Drain Valve [Qty: 9]

The bleeder/drain valves shall be Innovative Controls ¾" ball brass drain valves with a chrome-plated 1/4 turn handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve.

Discharge/Intake Bezel

Innovative Controls intake and/or discharge swing handle bezels shall be installed to the apparatus with mounting bolts. These bezel assemblies will be used to identify intake and/or discharge ports with color and verbiage. These bezels are designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The specified assemblies feature a chrome-plated panel-mount bezel with durable UV resistant polycarbonate inserts. These UV resistant polycarbonate graphic inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

FRC PumpBoss Pressure Governor

Fire Research PumpBoss Max series PBA500-A00 pressure governor and control module kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module housing shall be waterproof and have dimensions not to exceed 7 1/2" high by 3 5/8" wide. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 2" from the front of the control module. The control LCD shall be 3.5" in size with a minimum brightness of 1000 nits and optically bonded to 3 mm Borofloat Glass. Inputs for monitored engine information shall be from a J1939 data bus or independent sensors. Outputs for engine control shall be on the J1939 data bus or engine specific signal wiring. Inputs from the pump discharge and intake pressure sensors shall be electrical.

The following continuous displays shall be provided:

- Engine RPM; shown on LCD screen
- Check engine and stop engine warning; shown on LCD screen
- Engine oil pressure; shown on LCD screen
- Engine coolant temperature; shown on LCD screen
- Transmission Temperature; shown on LCD screen
- Battery voltage; shown on LCD screen
- Pressure and RPM operating mode LEDs
- Pressure / RPM setting; shown on LCD screen
- Throttle ready / Ok to Pump LEDs.

On screen (LCD) message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. LCD Screen and LED's intensity shall be automatically adjusted for day and nighttime operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

- High Battery Voltage
- Low Battery Voltage (Engine Off)
- Low Battery Voltage (Engine Running)
- High Transmission Temperature
- Low Engine Oil Pressure
- High Engine Coolant Temperature
- Out of Water (visual alarm only)
- No Engine Response (visual alarm only).

The program features shall be accessed via push buttons located on the front of the control module. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

The pressure governor shall operate in two control modes, pressure, and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready and Ok to Pump LED shall light when the interlock signal is recognized. The pressure governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the pressure governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The pressure governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle.

Foam Tank Level Gauge

One (1) Innovative Controls brand foam tank level gauge shall be located at the pump operator's panel to provide a high-visibility display of the foam tank level. Ten (10) high-intensity light emitting diodes (LEDs) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180-degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an “anti-slosh” feature.

Water Tank Level Gauge

One (1) Innovative Controls brand water tank level gauge shall be located at the pump operator’s panel to provide a high-visibility display of the water tank level. Ten (10) high-intensity light emitting diodes (LEDs) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180-degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. System calibration shall be accomplished via supplied magnet. Display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an “anti-slosh” feature.

In addition to the pump panel mounted lights there shall be one (2) Whelen PSTank2 series LED (Light Emitting Diode) strip light installed as specified.

The system shall be controlled by an Innovative Control tank level driver module that is integral of the NFPA required pump panel mounted tank level light assembly.

The additional tank level system shall be interlocked through the parking brake assembly so as not to be on while the vehicle is in motion.

The remote strip light shall be arranged as follows:

Full Green
3/4 Blue
1/2 Amber
1/4 Red

Location of Whelen PSTank2 Strip Lights: each side of cab rear of front doors.

Pressure Gauge [Qty: 9]

Innovative Controls TC Series 2.5" (63MM) pressure gauge(s) shall be provided. Each gauge shall have a glass-filled nylon case, a clear scratch-resistant lens, and a highly polished stainless-steel bezel.

The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels.

The gauge shall be fully-filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation, and ensure proper operation from –40°F to +160°F.

Each gauge shall exceed (NFPA 1901 16.12.3.7) ASME B40.100 Grade B requirements (3% 2% 3%) with an accuracy of +/- 1.5% full scale and include an internal thermal expansion bladder that allows the gauge fill to expand in high temperature environments.

The gauges shall also include a KEM-X Socket Saver diaphragm in the stem to eliminate freeze-up and contain a low temperature instrument oil that fills and protects the socket and bourdon tube.

The gauges shall display a range specified with enhanced black markings on a white dial.

Pressure Gauge

Innovative Controls TC Series 4" (100MM) Master pressure gauges with dual bezel shall be provided. Includes test ports and alarm.

Each gauge shall have a glass-filled nylon case, a clear scratch-resistant lens, and a highly polished stainless-steel bezel.

The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels.

The gauge shall be fully-filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation, and ensure proper operation from –40°F to +160°F.

Each gauge shall exceed (NFPA 1901 16.12.3.7) ASME B40.100 Grade B requirements (3% 2% 3%) with an accuracy of +/- 1.5% full scale and include an internal thermal expansion bladder that allows the gauge fill to expand in high temperature environments.

The gauges shall also include a KEM-X Socket Saver diaphragm in the stem to eliminate freeze-up and contain a low temperature instrument oil that fills and protects the socket and bourdon tube.

The gauges shall display a range specified with enhanced black markings on a white dial.

Pressure Gauge

Pump panel pressure gauges shall be 0-400 / Master Intake gauge shall be 30-0-400.

Foam System

There shall be a FoamPro 1600 fully automatic electronic direct injection foam proportioning system furnished and installed on the fire pump. The system shall be capable of Class A foam concentrations only. The proportioning operation shall be based on an accurate direct measurement of water flow with no restriction. The proportioning system shall meet NFPA standards for foam proportioning systems and the design shall have passed testing against SAE automotive reliability standards appropriate for the application. The foam system shall be installed in accordance with the manufacturer recommendations.

Controls shall be installed on the pump operator's panel and enable the pump operator to perform the following control and operation functions:

- Activate the foam system.
- Change foam concentrate proportioning rates from .1% to 1% in .1% increments.
- Feature a "low concentrate" warning indicator.

The foam system shall have a 12 volt, 3/4 hp "TENV" electric motor designed for wet and high humidity environments, direct coupled to a positive displacement piston type foam concentrate pump with a rated capacity of 1.7 gpm @ 200 psi (6.4 L/min@13.8 BAR) with maximum operating pressures up to 400 psi (27.6 BAR).

Foam System Certification

The foam system performance shall be tested and certified in compliance with the applicable NFPA 1901 requirements.

Foam System Plumbing

The specified foam system shall be plumbed to 1.5 first crosslay, 1.5 second crosslay, first 2.5 crosslay, officer's side front jump line.

Multiplex Electrical System

The apparatus shall incorporate a Weldon V-MUX multiplex 12-volt electrical system. The system shall have the capability of delivering multiple signals via a CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA 1901standards.

The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.

The electrical circuits shall be provided with low voltage overcurrent protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The overcurrent protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.

Multiplex System

For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:

- The network system must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this

application.
• Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.
• All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.
• Each module that controls a device shall hold its own configuration program.
• Each module should be able to function as a standalone module. No “add- on” module will be acceptable to achieve this form of operation.
• Load shedding power management (8 levels).
• Switch input capability for chassis functions.
• Responsible for lighting device activation.
• Self-contained diagnostic indicators.
• Wire harness needed to interface electrical devices with multiplex modules.
• The grounds from each device should return to main ground trunk in each sub harness by the use of ultrasonic splices.

Wiring

All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines.

• NFPA 1901-Standard for Automotive Fire Apparatus
• SAE J1127 and J1127
• IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies. (Class 3 – High Performance Electronic Products)

All wiring shall be copper, or copper alloys of a gauge rated to carry 125 of the maximum current for which the circuit is protected. Insulated wire and cable 8ga and smaller shall be SXL, GXL, or TXL per SAE J1128. Conductors 6ga and larger shall be SXL or SGT per SAE J1127.

All wiring shall be color coded and imprinted with the circuit’s function. The minimum height of imprinted characters shall not be less than .082” plus or minus .01”. The imprinted characters shall repeat at a distance not greater than 3”.

A coil of wire shall be provided behind electrical appliances to allow them to be pulled away from the mounting area for inspection and service work.

Wiring Protection

The overall covering of the conductors shall be loom or braid.

Braid style wiring covers shall be constructed using a woven PVC-coated nylon multifilament braiding yarn. The yarn shall have a diameter of no less than .04” and a tensile strength of 22lbs. The yarn shall have a service temperature rating of -65 F to 194 F. The braid shall consist of 24 strands of yarn with 21 black and 3 yellow. The yellow shall be oriented the same and be next to each other.

The wiring loom shall be flame-retardant black nylon. The loom shall have a service temperature of -40 F to 300 F and be secured to the wire bundle with adhesive-backed vinyl tape.

Wiring Connectors

All connectors shall be Deutsch series unless a different series of connectors is needed to mate to a supplier's component. The connectors and terminals shall be assembled per the connector/terminal manufacturer's specification. Crimble/Solderless terminals shall be acceptable. Heat shrink style shall be utilized unless used within the confines of the cab.

Fast Idle System

A fast idle system shall be provided and controlled by a switch accessible by the driver. The system shall increase engine idle speed to a preset RPM for increased alternator output.

NFPA Required Testing of Electrical System

The apparatus shall be electrical tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with delivery documentation per requirements of NFPA #1901. The following minimum testing shall be completed by the apparatus manufacturer:

1. Reserve capacity test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test fail.

2. Alternator performance test at idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

3. Alternator performance test at full load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded by excessive battery discharge, as detected by the system required in NFPA #1901 Standard, or a system voltage of less than 11.7 volts dc for a 12-volt nominal system, for more than 120 seconds, shall be considered a test failure.

4. Low voltage alarm test:

Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts dc for a 12-volt nominal system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

NFPA Required Documentation

The following documentation shall be provided upon delivery of the apparatus:

A. Documentation of the electrical system performance tests required above.

B. A written load analysis, including:

a. The nameplate rating of the alternator
b. The alternator rating under the conditions
c. Each specified component load
d. Individual intermittent loads

Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1901. The following data shall be monitored:

- Vehicle speed MPH
- Acceleration (from speedometer) MPH/Sec.
- Deceleration (from speedometer) MPH/Sec.
- Engine speed RPM
- Engine throttle position % of full throttle
- ABS Event On/Off
- Seat occupied status Occupied Yes/No by position
- Seat belt status Buckled Yes/No by position
- Master Optical Warning Device Switch On/Off
- Time: 24-hour time
- Date: Year/Month/Day

Occupant Detection System

There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.

The audible warning shall activate when the vehicle's park brake is released, and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.

The visual warning shall consist of a graphical representation of each cab seat in the multiplex display screen that will continuously indicate the validity of each seat position.

The system shall include a seat sensor and safety belt latch switch for each cab seating position, audible alarm, and braided wiring harness.

Multiplex Display

The V-MUX multiplex electrical system shall include a Vista IV color display.

The display shall have the following features:

- Aspect ratio of 16:9 (Wide Screen)
- Diagonal measurement of no less than 7"
- Master warning switch

- Engine high idle switch
- Five (5) tactile switches to access secondary menus
- Eight (8) multi-function programmable tactile switches
- Specific door ajar indication
- Real time clock
- Provides access to the multiplex system diagnostics
- Video capability for optional back-up camera(s) and GPS display

The display shall be located on the driver's side engine cover.

Electrical Connection Protection

The vehicle electrical system shall be made more robust by the application of a corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body. If equipped with an aerial device, the exposed connections on the aerial components shall also be protected.

The coating shall use nanotechnology to penetrate at the molecular level into uneven surfaces to create a protective water repellant film. The coating shall protect electrical connections against the environmental conditions the apparatus is commonly exposed to.

Front Light Bar Color(s)

The front light bar shall be provided with the following color LED modules: RED with CLEAR lenses.

If applicable, includes side facing light bars when colors are the same.

Light Bar Mount

One (1) pair of Whelen 1.5" tall (model MKEZ7) mounts shall be provided on each front mini light bars.

Light Bars

A pair of Whelen Mini Freedom IV Series 21.5" LED light bars shall be provided.

Each light bar shall contain two (2) corner LED modules forward facing, two (2) forward facing Long LED modules and one (1) outward facing Short LED module. No rear facing LEDs.

The light bars shall be installed in the following location: front cab corners.

Hazard (Door Ajar) Light

There shall be a 2” red LED hazard light installed as specified.

The light shall be located center overhead.

Upper Rear Warning Lights

Two (2) Whelen model L31H Super LED beacons RED with CLEAR lenses shall be supplied.

The lights shall be located on each side of pump module offset to the rear, rear upper body on aerial style brackets to meet Zone C upper requirements.

Warning Lights

Two (2) Whelen 600 series Super LED light heads shall be provided. The lights shall be RED with CLEAR lenses. The rectangular lights shall include chrome flanges where applicable.

Location: (1) each side NFPA/ULC required lower zone front facing, (1) each side NFPA/ULC required lower zone forward side facing, (1) each side NFPA/ULC required lower zone midship side facing, (1) each side NFPA/ULC required lower zone rear side facing, (1) each side NFPA/ULC required lower zone rear facing, (1) each side in front quad inboard of NFPA warning light.

Electronic Siren

A Whelen 295SLSA1 electronic siren shall be installed in the cab. The siren amplifier and control panel module shall include a rotary selector for six (6) functions, on/off switch, push button switch for manual siren or air horn tones, and noise canceling microphone.

Electronic Siren Control Location

The electronic siren control shall be located in the center overhead console offset to driver side.

Mechanical Siren

A chrome plated flush mounted Federal Q2B-NN coaster siren shall be installed in the front bumper. An electric siren brake switch shall be located in the cab accessible to the driver.

The siren shall be located at the driver's side front bumper.

Siren Speaker

Two (2) Federal Signal model ES100 Dynamax 100-watt speaker shall be flush mounted as far forward and as low as possible on the front of the vehicle. A polished model MSFMT grille shall be provided on the outside of the speaker to prevent road debris from entering the speaker.

Speaker dimensions shall be: 5.5 in. high x 5.9 in. wide x 2.5 in. deep. Weight = 5.5 lbs.

The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA 1901 requirements.

The speakers shall be located driver side front bumper inboard of frame, officer side front bumper inboard of frame.

License Plate Light

One (1) Truck-Lite model 15905 white LED license plate light mounted in a Truck-Lite model 15732 chrome plated plastic license plate housing shall be mounted at the rear of the body.

Taillights

Three (3) Whelen model 600 series LED (Light Emitting Diode) lights shall be installed each side at the rear with weatherproof connectors.

Light functions shall be as follows:

• One (1) model 604BTT LED red running light with red brake light in outboard position.
• One (1) model 604T LED amber turn signal in middle position.
• One (1) model 604BU LED clear back-up light in inner position.

Individual chrome bezels shall be provided for the three (3) individual lights in a horizontal position.

LED Marker Lights
LED clearance/marker lights shall be installed on the cab. The body marker lights shall be TecNiq 3/4" grommet mounted LED.

Upper Cab:
• Five (5) amber LED clearance lights on the cab roof.

Lower Cab:
• One (1) amber LED side turn/marker each side of cab ahead of the front door hinge.

Upper Body:
• One (1) red LED clearance light each side, rear of body to the side.

Lower Body:
• Three (3) red LED clearance lights centered at rear, recessed in the rubrail.
• One (1) red LED clearance light each side at the trailing edge of the apparatus body, recessed in the rubrail.
• One (1) amber LED clearance light each side front of body just in front of rear wheels, recessed in the rubrail.
• Two (2) amber LED (one (1) clearance; one (1) auxiliary turn) lights each side front of body, recessed in the rubrail.

Turn Signal Flash Pattern
The forward and rear turn signals shall have a populated full light flash pattern.

Compartment Light Package
One (1) Hansen compartment light strip shall be mounted in each body compartment greater than 4 cu. ft. Transverse compartments shall have two (2) lights, located one (1) on each side.

Each light bar shall include white LEDs mounted with a tough polycarbonate tube enclosure to protect the LED circuit board. The lights shall produce 120 lumens per foot and be waterproof up to IP66 rating.

Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel.

The wiring connection for the compartment lights shall be made with a weather-resistant plug-in style connector. A single water and corrosion-resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall allow the light to illuminate if the compartment door is open.

Medical Cabinet Lighting
One (1) Hansen LED compartment light strip shall be mounted in the medical cabinet(s).

Each light bar shall include white LEDs mounted with a tough polycarbonate tube enclosure to protect the LED circuit board. The lights shall produce 120 lumens per foot and be waterproof up to IP66 rating.

The light shall be controlled by a compartment door switch.

Ground Lights

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA requirements. The lights shall be TecNiq model T440 4" circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug-in style connector.

Ground area lights shall be switched from the cab dash with the work light switch.

One (1) ground light shall be supplied under each side of the front bumper extension if equipped.

Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened.

Step Lights

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the steps around the apparatus in accordance with current NFPA requirements. The lights shall be TecNiq model T440 4" circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life (a smaller light may be used if space is limited). The wiring connections shall be made with a weather resistant plug-in style connector.

The step lights shall be switched from the cab dash with the work light switch.

Additional Compartment Light

One (1) Hansen compartment light strip shall be mounted in the specified compartments with a length of 49"-65" in increments depending on compartment configuration.

Each light bar shall include WHITE LEDs mounted with a tough polycarbonate tube enclosure to protect the LED circuit board. The lights shall produce 120 lumens per foot and be waterproof up to IP66 rating.

The light shall be wired to the compartment light switch in the cab.

Location: L1, R1.

Ladder Tunnel Light [Qty: 3]

An EON LED light shall be provided to illuminate the ladder tunnel at the opening. The light shall be wired through the door ajar circuit on the ladder tunnel door.

Hose Bed Light

An Optronics round LED light model TLL44 shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901. The light shall provide 720 lm effective output. The light shall have a black powder coated die cast aluminum housing, and stainless-steel hardware with a weatherproof rating of IP69K.

The hose bed light shall be switched with the work light switch in the cab.

Scene Lights

Two (2) Whelen model 6SC0ENZR 600 series Super LED clear scene lights shall be provided.

Each shall have 12 Super LED diodes with internal light deflecting optics. The internal light deflecting optics shall redirect the light from 8 - 32 degrees.

Lights shall be located up high on rear access door and switched in cab (side facing lights switched separately).

Crosslay Light

An Optronics round LED light model TLL44 shall be installed at the rear area of the crosslay to provide crosslay lighting per current NFPA 1901. The light shall provide 720 lm effective output. The light shall have a black powder coated die cast aluminum housing and stainless-steel hardware with a weatherproof rating of IP69K.

The crosslay light shall be switched with the work light switch in the cab.

Pump Compartment LED Light

An LED light shall be provided in the pump compartment area for NFPA compliance. The light shall be wired to operate with the work light switch in the cab.

LED Pump Panel Light Package

Three (3) TecNiq model E10 LED lights shall be mounted under a light shield directly above each side pump panel. The work light switch in the cab shall activate the lights when the park brake is set.

Engine Compartment Light

There shall be lighting provided to illuminate the engine compartment area in compliance with NFPA 1901. The light shall be an Optronics ILL22 Series LED that has a polycarbonate lens, sealed waterproof housing and an integral switch. The light wiring circuit shall activate when the cab is tilted, and the master power is switched on.

Door Ajar Alarm

An audible alarm shall be provided through the multiplex display(s) in the cab wired into the door ajar or indicator.

Foot Switch

A heavy-duty metal floor mounted foot switch shall be installed to operate the Q2B siren. It shall be located on the driver's side.

Camera Shield

A diamond plate protective shield shall be provided for the top and sides of a camera. The shield shall be designed not to impede the operational envelope of the camera.

Camera Back-Up

There shall be a Safety Vision camera model number SV-625B-KIT provided. The camera shall be mounted up high at the rear of the vehicle to provide a wide-angle rear view with audio. The camera shall include a cable

with metallic waterproof threaded O-ring seal connectors to ensure positive connection between video cable and camera to prevent unplugging due to vibration resulting in video loss to vehicle operator. The camera shall be interlocked with the chassis transmission. When the apparatus is placed in reverse the camera shall automatically be activated and when the transmission is placed in any other gear the screen shall return to the previously displayed screen.

Three-Way Intercom

A Fire Research ACT three-way intercom system shall be installed to provide communications between the turntable control station, the aerial tip and driver side pump panel. The intercom system shall include three (3) speakers and three (3) control modules; one (1) with a push-to-talk button at the turntable control station, one (1) with a push-to-talk button at the pump operator's panel and one (1) hands-free at the aerial tip.

The control modules shall have push-button volume control and an LED volume display. The hands-free module shall constantly transmit to the other module unless the push-to-talk button is pressed.

The intercom shall have active noise cancellation and be designed for exterior use.

Alternating Headlights

The chassis high beam headlights shall alternately flash and shall be controlled by a switch inside the cab.

Back-Up Alarm

An electronic back-up alarm shall be supplied. The 97 dB alarm shall be wired into the chassis back-up lights to signal when the vehicle is in reverse gear.

12 Volt Power Lead

One (1) 12 volt/12 gauge/10-amp constant hot lead shall be provided. The lead shall be 24" long and include a ground wire and fuse.

The lead shall be located R1 upper forward wall.

LED Flood Light [Qty: 2]

One (1) FireTech 12V LED mini-brow flood light model FT-MB-27-F-W 35" long shall be provided. The light shall feature 27 LEDs producing 9,317 usable lumens. The 135W 12V light shall draw 11.25 amps. A switch shall be provided, accessible to the driver, for activation of light.

The light assembly shall be located on the driver and officer side centered between front and rear cab doors on cab top.

Cab Brow Light [Qty: 2]

One (1) FireTech 12V LED double stacked flood light model FT-MB-2.15-F-W 18" long with white housing shall be provided. The light shall feature 30 LEDs producing 11,088 usable lumens. The 150W 12V light shall draw 12.5 amps. A switch shall be provided, accessible to the driver, for activation of light.

Location: driver and officer side front cab brow.

LED Flood Light: [Qty:2]

One (1) FireTech 12V LED mini-brow flood light model FT-MB-27-F-W 35" long with white housing shall be provided. The light shall feature 27 LEDs' producing 9,317 usable lumens. The 135W 12V light shall draw 11.25 amps. A switch shall be provided, accessible to the driver, for activation of light.

The light assembly shall be located L2 compt top centered, R1 compt top centered.

Receptacle

A 20-amp, 110 volt 3-prong straight blade NEMA 5-20 duplex household receptacle with stainless steel cover plate shall be installed in a non-weather exposed area as specified by the department. The receptacle shall be wired to the inlet receptacle where it will have overcurrent protection from an external source.

Location: In cab driver side on 3 x 3 post rear facing just above engine cover.

75' Aerial Ladder

A 75' telescopic aerial ladder of the open-truss design shall be installed at the rear of the vehicle with the aerial ladder pointed forward when it is in the travel position. The aerial ladder shall meet or exceed the requirements of NFPA 1901 (2016 edition), Sections 19.2 through 19.6 and Sections 19.17 through 19.25.

The aerial ladder shall consist of three (3) telescopic ladder sections capable of operating from minus (-) 8 degrees to plus (+) 76 degrees elevation at any ladder extension to give a full range of movement. The aerial ladder shall be designed to provide continuous egress for firefighters and civilians from any angle of elevation to the ground as defined in the current edition of NFPA 1901.

The aerial ladder shall have a rated vertical height of 75' measured in a vertical plane from the outermost rung of the outermost fly section to the ground with the ladder at maximum elevation and extension as defined in the current edition of NFPA 1901.

The aerial ladder shall have a rated horizontal reach of 70.2' measured in a horizontal plane from the centerline of the turntable rotation to the outermost rung of the outermost fly section with the aerial ladder extended to its maximum horizontal reach as defined in the current edition of NFPA 1901.

The aerial ladder shall utilize a single pair of stabilizers - one (1) on the left and one (1) on the right opposite each other - with a maximum horizontal stabilizer spread of 16' across the centerlines of the footpads. Aerial ladders which require two (2) sets of extending stabilizers or that have a maximum stabilizer spread greater than 16' are not acceptable because of the need to utilize the aerial ladder in confined areas. Aerial ladders that require a set of drop-down jacks behind the cab are not acceptable. This type of configuration decreases compartment space and increases the overall vehicle weight, causing increased bending load on the chassis. In addition, it raises the water tank, which affects the overall center of gravity of the truck.

The aerial ladder shall have a rated tip capacity of 575 lbs. when the ladder is unsupported at full extension and 0 degrees elevation as defined by the current edition of NFPA 1901. This capacity may take the form of firefighters wearing personal protective gear, people being rescued, equipment, or any combination of loads not to exceed the rated tip capacity. The rated tip capacity shall include an allowance of 75 lbs. for equipment mounted at the tip of the ladder. Ladders which have a rated NFPA tip capacity of less than 575 lbs. are not acceptable because of the need to utilize the aerial ladder for rescue operations in which two (2) personnel may be on the tip at the same time.

The ladder shall be able to provide full operating capacities in up to 35 mph wind conditions.

Aerial Ladder Construction

To ensure a high strength-to-weight ratio, high heat resistance, and an inherent corrosion resistance, the aerial ladder shall be constructed entirely of extruded high-strength aluminum alloy.

All side rails, rungs, handrails, uprights, and K-braces shall be made of structural 6061-T6 aluminum alloy extrusions. All material shall be tested and certified by the material supplier. All ladder sections shall be semi-automatically welded by inert gas shielded-arc welding methods using 5356 aluminum alloy welding wire. Structural rivets or bolts shall not be utilized in the ladder weldment sections.

Due to the unpredictable nature of fireground operations, a minimum safety factor of 2.5 to 1 is desired. This structural safety factor shall apply to all structural aerial components including turntable and torque box stabilizer components. Definition of the structural safety factor shall be as outlined in NFPA 1901 A.19.20.1:

DL = Dead load stress. Stress produced by the weight of the aerial device, and all permanently attached components.
RL = Rated capacity stress. Stress produced by the rated capacity load of the ladder.
WL= Water load stress. Stress produced by nozzle reaction force and the weight of water in the water delivery system.
FY = Material yield strength. The stress at which material exhibits permanent deformation.

2.5 x DL + 2.5 x RL + WL equal to/less than FY

The minimum NFPA specification is exceeded in this paragraph by requiring safety margin above 2 to 1 while flowing water.

The stability factor or tip over safety margin shall be a minimum of 1.5 to 1 as defined by NFPA 1901 19.21.

An independent, third-party engineering firm shall verify both the structural safety factor and the stability factor. Design verification shall include computer modeling and analysis, and extensive strain gauge testing performed by an independent registered professional engineer. Written certification from the independent, third-party engineering firm shall be made available by the manufacturer upon request from the purchaser.

All welding of aerial components -- including the aerial ladder sections, turntable, torque box, and outriggers -- shall be performed by welders who are certified to American Welding Society Standards D1.1, D1.2 and D1.3 as outlined in the current edition of NFPA 1901.

The weldment assemblies of each production unit shall be tested visually and mechanically by an ASNT-certified level II non-destructive test technician to comply with the current edition of NFPA 1901. Testing procedures shall conform to the American Welding Society Standard B1.10 Guide for non-destructive testing. Test methods include a thorough visual inspection of each weld, and the use of dye penetrates where applicable.

Each ladder section shall consist of two (2) extruded aluminum side rails and a combination of aluminum rungs, tubular diagonals, verticals, and two (2) full-length handrails. The rungs on all sections shall be K-braced for maximum lateral stability. This K-bracing shall extend to the center of each rung to minimize ladder side deflection.

The ladder rungs shall be spaced on 14” centers and shall be designed with an integral skid-resistant surface to eliminate the need for rubber rung covers. A ”D” shaped rung shall be utilized to provide a larger step surface at low angles and a more comfortable grip at elevated positions. The larger step surface is critical to distribute the load on the bottom of the firefighters’ foot. Round rungs are not acceptable as they increase the stress load on the foot and are more likely to cause bruising. The minimum design load of each rung shall be 500 lbs. distributed over a 3-1/2” wide area in the center of the length of the rung as required in the current edition of NFPA 1901.

To provide a wide working area with an easy-to-grasp handrail, the aerial ladder shall exceed the requirements of the current edition of NFPA 1901 regarding the minimum ladder section inside width and the minimum handrail height by providing the following inside widths and handrail heights:

A fly section width of at least 25” is required to allow a 24” wide stokes basket to fit between the handrails.

Section	**Width**	**Height**
Base Section	37-5/8”	22-7/8”
Second Section	30-3/4”	19-3/8”
Fly Section	25-3/16”	16-1/4”

Ladder Extension/Retraction Mechanism

Both power extension and power retraction shall be furnished and shall meet the requirements of the current edition of NFPA 1901. Extension and retraction shall be by way of two (2) hydraulic cylinders mounted on each side of the base section of the aerial ladder. Each cylinder shall have a 3-1/4” (3.25”) bore and a 59-1/2” (59.5”) stroke.

The cylinders shall operate through a block and tackle cable arrangement to extend and retract the ladder. Maximum extension of the ladder is to be automatically limited by the stroke of the cylinders. The normal operating cable safety factor shall be 5.0 to 1 and the stall safety factor shall be 2.0 to 1 based on the breaking strength of the cables. The minimum ratio of the diameter of the block and tackle sheave to the diameter of the cable shall be 12.0 to 1 to allow smooth operation and reduce bending stresses on the cables. The cables shall be treated with Pre-Lube 6 for increased service life.

The cable sizes shall be as follows:

2nd section (4 cables - 2 extend, 2 retract)	7/16” 6 x 19 galvanized cable
Fly section (4 cables - 2 extend, 2 retract)	1/4” 7 x 19 galvanized cable

The aerial ladder sections shall slide within each other. Nylatron NSM pads shall be utilized between each section to minimize friction. Four (4) C-type interlocking load transfer stations shall enclose the pads. The transfer stations shall be located at the upper portion of the base and the second ladder sections.

Aerial Extension Indicator

Reflective tape stripes shall be installed on the aerial ladder handrail of the base section to indicate extension in 10’ increments. A reflective dot on the base of the second section shall provide a visual reference for the operator to estimate aerial elevation.

Aerial Finish

To reduce maintenance expense, the aerial ladder shall have a natural aluminum swirled finish. This will also allow visible inspection of all ladder weld joints without having to remove paint or body filler to reveal the weld bead. Ladders finished with paint or with any other material that covers the base metal and weld joints are not acceptable.

Operation Times

The aerial ladder shall complete the elevation-extension-rotation test described in the current edition of NFPA 1901 in not more than 120 seconds or less. This test involves raising the aerial from the bedded position to full elevation and extension and rotating it 90 degrees. This test is to begin with the stabilizers deployed.

In addition to completing the test described above, the aerial ladder shall be capable of performing the following operations in the times noted:

Time to extend ladder	maximum 35 seconds
Time to retract ladder	maximum 25 seconds
Time to raise ladder	maximum 20 seconds
Time to lower ladder	maximum 30 seconds
Time to rotate 180 degrees	maximum 55 seconds

Aerial Ladder Rated Capacities

The aerial ladder shall have a rated capacity of 575 lbs. when the ladder is unsupported at full extension and 0 degrees elevation as defined by the current edition of NFPA 1901. This rated capacity consists of a 500 lb personnel rating and a 75 lb. equipment rating. The 75 lb. capacity for the equipment is for mounted equipment at the tip. This capacity may take the form of firefighters wearing personal protective gear, people being rescued, equipment, or any combination of loads not to exceed the rated tip capacity. The rated tip capacity shall be in addition to an allowance of 75 lbs. for equipment mounted at the tip of the ladder.

A sign mounted at the base of the aerial ladder shall communicate the aerial ladder capacity ratings for the following configurations when the ladder is in the unsupported, fully extended configuration while maintaining a 2.5 to 1 safety margin. These capacities may take the form of firefighters wearing personal protective gear, people being rescued, equipment, or any combination of loads not to exceed the rated capacities. For purposes of this sign, it shall be assumed that each person weighs 250 lbs. In no case shall the actual combined weights of personnel, equipment, and other loads exceed the rated capacities. The loads for each configuration are in addition to an allowance of 75 lbs. for equipment mounted at the tip of the ladder.

Condition #1- Tip load only, no water flowing

Elevation	**Capacity**	**Pounds**
-8 to 40 degrees	2 people	500 lbs.
41 to 49 degrees	3 people	750 lbs.
50 to 76 degrees	4 people	1000 lbs.

Condition #2- Distributed loads no water flowing (These include one person at the tip)

Elevation	**Capacity**	**Pounds**
-8 to 30 degrees	3 people	750 lbs.

31 to 45 degrees	5 people	1250 lbs.
46 to 76 degrees	8 people	2000 lbs.

Condition #3- Ladder tip load while flowing 1000 gpm with pre-piped waterway

Elevation	**Capacity**	**Pounds**
-8 to 76 degrees	2 people	500 lbs.

Hydraulic System

The hydraulic fluid reservoir shall consist of a 52-gallon tank mounted to the torque box and plumbed to the suction side of the hydraulic pump. The tank shall be supplied with a removable top to allow access to the tank strainer filter. There shall be ports for a return line and a tank drain on the reservoir. The reservoir fill cap shall be marked “Hydraulic Oil Only”. Gated valves under the tank shall facilitate filter changes. The hydraulic fluid reservoir shall have sufficient volume and be mounted in such a manner to minimize heat buildup and meet the performance requirement in the current edition of NFPA 1901.

An interlock device shall be provided to prevent activation of the aerial ladder hydraulic pump until either the transmission is placed in neutral, and the parking brake is set, or the transmission is placed in drive and the rear driveline is disengaged as outlined in NFPA 19.17.3.

All hydraulic components with non-sealing moving parts, whose failure could result in the movement of the aerial, shall have a minimum burst strength of four (4) times the maximum operating pressure to which the component is subjected in order to comply with the current edition of NFPA 1901.

All hydraulic components with dynamic sealing parts, whose failure could result in the movement of the aerial, shall not begin to extrude, or otherwise fail at pressures at or below two (2) times the maximum operating pressure to which the component is subjected in order to comply with the current edition of NFPA 1901.

All hydraulic hoses and fittings shall have a minimum burst strength of at least three (3) times the maximum operating pressure to which the component is subjected in order to comply with the current edition of NFPA 1901.

All hydraulic tubing shall be made of stainless steel whenever possible. It shall have a minimum burst strength of four (4) times the maximum operating pressure to which it is subjected in order to exceed the requirements of the current edition of NFPA 1901. Hydraulic systems composed primarily of hose or galvanized steel lines shall not be acceptable due to the higher maintenance requirements of the system over the life of the vehicle.

A hydraulic oil pressure gauge shall be supplied at the aerial ladder control station as required by the current edition of NFPA 1901.

The hydraulic system shall use 5w-20 multi-weight, SAE 32 grade oil. It shall incorporate the following filters in order to remove contaminants and provide dependable service:

Reservoir Breather:	10-micron
Magnetic Reservoir Strainer:	125-mesh
Pressure Filter (Torque Box):	3-micron
Return Filter:	10-micron

The aerial ladder hydraulic system shall be designed in such a manner that a hydraulic pump failure or line rupture shall not allow the aerial or outriggers to lose position. Hydraulic holding valves shall be mounted directly on the hydraulic cylinders. To ensure reliable performance of holding valves, hoses shall not be permitted between a holding valve and cylinder.

The aerial shall incorporate the use of stainless-steel tubes inside the torque box and jack legs to minimize the possibility of hydraulic leaks.

Hydraulic power to the ladder shall be transferred from the torque box by a hydraulic swivel fitting.

Auxiliary Hydraulic Pump

The hydraulic system shall include an auxiliary 12-volt hydraulic pump powered by the chassis electrical system in case the vehicle engine or the primary hydraulic pump fails . The auxiliary pump shall allow operation at reduced speeds to store the aerial device and retract the outriggers for road transportation. Self-centering switches shall be provided at the turntable and at each stabilizer control station to operate the auxiliary system.

Forward Aerial Support

The aerial ladder support shall be constructed from 7/8" thick steel plate. Bolt-in diagonal bracing shall be installed on the support structure in an "X" pattern to restrict side-to-side movement. This design shall allow for a pre-determined amount of flex, preventing premature failure that can be found in an overly rigid structure. The support shall be located behind the rear wall of the cab and shall be bolted to the frame rails to allow removal in case of accidental damage.

Aerial Torque Box

In order to maximize structural strength and vehicle stability while minimizing rear axle weight, a vertical cylindrical aerial torque box shall be used. Vehicles utilizing horizontal square aerial torque boxes are not acceptable because the heavy weight of these designs conflicts with the goal of utilizing a single rear axle.

The aerial torque box shall be welded from 10” x 28.5 lbs./ft. A36 grade structural steel channels with 3/8” minimum thick top and bottom plates and 3/8” minimum thick integral bulkheads. The pedestal shall be a 24” outside diameter cylinder with a 3/8” minimum wall and shall connect the rotation bearing mounting plate to the torque box.

The aerial torque box pedestal assembly shall be bolted to the chassis frame with sixteen (16) 3/4” minimum diameter Grade 8 bolts. It shall be utilized to mount the stabilizers and the reservoir for the aerial hydraulic system.

Stabilization System

The vehicle shall come equipped with an out-and-down stabilization system. The system shall consist of two (2) hydraulically operated out-and-down style stabilizers welded to the torque box and mounted under the frame for a low center of gravity.

The stabilizers shall have a maximum spread of 16’ across the centerlines of the footpads when fully extended. The internal stabilizer tubes shall be 8” x 10” with 1/2” thick top and bottom plates and 5/8” thick sides. They shall be made of steel with a 100,000-psi minimum yield strength and shall be extended out by hydraulic cylinders. The external stabilizer tubes shall be 9-3/4” x 11-3/4” with 3/8” wall thickness. The internal tubes shall slide on low friction pads.

The stabilizers shall provide the vehicle with a tip-over safety margin of 1.5 times the rated aerial ladder load in any position the aerial ladder can be placed when the vehicle is on a firm and level surface.

The aerial shall be able to sustain a 1-1/3 to 1 rated load on a 5-degree slope downward in the position most likely to cause overturning as outlined in NFPA 1901 19.21.3.1. The maximum grade the apparatus can be set up on is 6.8 degrees (12 percent). On a 6.8-degree (12 percent) grade, the apparatus can be leveled within a 3.4 degree (6 percent) operating range with the apparatus cab facing uphill.

The stabilizer extension cylinders shall have a 2.5" bore and a 51.5" stroke. The stabilizer lift cylinders shall be mounted on the end of the stabilizer tube and shall have a 4" bore and a 22" stroke.

The stabilizer cylinders shall be supplied with dual pilot-operated check valves on each stabilizer cylinder to hold the cylinder either in the retracted (stowed) or the extended (working) position should a hydraulic line be severed at any point in the hydraulic system. Stabilizers shall contain safety lock valves. This assures there will be no "leak down" of stabilizer legs. Mechanical pins are not required. This feature contributes to efficient set-up and field operation.

Each stabilizer leg shall have a 1/8" thick bright aluminum diamond plate shield, full height and width of the stabilizer opening, attached to the end of the leg. This plate shall serve as a protective guard and a mounting surface for the stabilizer warning lights. The top, forward, and rear edges shall be flanged for added strength. Each stabilizer shall have one (1) red warning light mounted on the outboard face of the protective guard.

The stabilizers shall be connected to a warning light in the cab to warn the operator when the stabilizers are deployed. A floodlight shall be provided in each stabilizer body opening to illuminate the stabilizer and the ground. The light shall automatically come on with the deployment of a stabilizer.

The ground contact area for each stabilizer shall be a 12" diameter circular disc without auxiliary stabilizer pads and a 24" x 24" square plate with auxiliary stabilizer pads deployed. The ground pressure shall not exceed 75 psi when the apparatus is fully loaded, and the aerial device is carrying its rated capacity in every position. This shall be accomplished with the auxiliary stabilizer pads deployed.

Stabilizer Controls

The main stabilizer control panel shall be located on the rear of the apparatus to control the operation of the stabilization system. The panel shall be labels "JACKS" and shall provide a master on-off power switch and indicator light, two (2) yellow indicator lights - one (1) for the left jack and one (1) for the right jack - to signify when each jack is fully extended and is in firm contact with the ground, a green interlock indicator light to signify when both jacks (stabilizers) are set, and a manual transfer switch to allow the operator to manually shift the hydraulic power from the jacks (stabilizers) to the ladder once the interlock light is green.

Horizontal extension and vertical lift of the stabilizers shall be controlled by two (2) switches - one (1) for the left stabilizer and one (1) for the right stabilizer - located at the rear of the apparatus just above the brake light on each side, so that the operator may observe the stabilizers during deployment. In operation, the stabilizer on each side must be fully extended horizontally before hydraulic power is automatically shifted to the vertical lift cylinder to level the vehicle. An audible alarm with a minimum 87 dbA shall sound while the stabilizers are in motion as required by the current edition of NFPA 1901. Stabilizer deployment from the stored position to the operating position shall be completed in less than 60 seconds. Two (2) switches to activate the auxiliary hydraulic pump shall also be provided - one (1) on each side below the stabilizer switch - to retract the stabilizers

in case the main hydraulic pump fails. The stabilizer switch and the auxiliary hydraulic pump switch on each side shall be protected from impacts by an inverted U-shaped guard made from aluminum diamond plate.

Two (2) switches - one (1) on each stabilizer leg - shall sense when the leg is in firm contact with the ground. This condition shall be indicated on the main stabilizer control panel by a yellow indicator light for each side.

Leveling of the apparatus shall be performed manually by the operator using two (2) color-coded level indicators at the rear of the apparatus in order to ensure visual confirmation that it is safe to operate the aerial ladder. The indicator for the front-to-rear level shall be located inside the aerial ladder turntable stairwell on the left side of the vehicle near the rear. The indicator for the side-to-side level shall be located above the rubrail on the rear of the vehicle near the rear suction inlet.

The aerial ladder hydraulic system shall be provided with an interlock that prevents rotation of the aerial ladder until both the stabilizers are down and properly set. Additionally, the system shall not permit stabilizer movement unless the aerial ladder is seated in the forward aerial support cradle in t he travel position. The interlock system shall have a manual override with access through a door at the rear of the truck.

Upper Turntable

The upper turntable assembly shall connect the aerial ladder to the turntable bearing. It shall be fabricated from 3/8” A-572 grade 50 steel and shall have a mounting position for the aerial elevation cylinders, the ladder connecting pins, and the upper turntable operator’s position.

One (1) 34-1/4” diameter turntable bearing with a 3” drive gear face shall be bolted to the top of the bearing mounting plate with twenty-six (26) 3/4” diameter Grade 8 plated bolts. Gear teeth shall be stub tooth form. The rated overturning moment of the turntable bearing shall be a minimum of 238,000 ft-lbs.

The operator’s turntable platform shall be constructed of 3/16” aluminum treadplate with “Gator Grip” non-skid integral surface mounted on a tubular frame. The platform shall extend from the left side of the aerial control station to the right-side ladder rail. The platform shall extend 23” from the pedestal control station base, with a width of approximately 18”. The rear of the platform shall extend approximately 19” back from the turntable gear pedestal and shall be approximately 40” wide at the rear. The platform shall be fastened by grade 8 bolts. Two (2) tubular steel handrails, each with an anti-slip finish, shall be installed on the on the right and left sides of the turntable platform. Two (2) Fire Research brand ManSaver bars, equipped with tubular padding, shall be installed between the railings. The bars shall lift up and inward (towards the ladder) permitting easy entrance to the ladder and control console. The rails shall be a minimum 39-3/4” high and shall not increase the overall travel height of the vehicle.

Elevation Mechanism

Two (2) 5” diameter elevating cylinders shall be mounted on the underside of the base section of the aerial ladder. A 1-3/4” pin shall fasten each cylinder to the turntable and a 2” pin shall fasten each cylinder to the aerial ladder. The elevating cylinders shall be mounted utilizing spherical bearings on both ends of the cylinders. The cylinders shall function only to elevate the ladder and not as a structural member to stabilize the ladder side movement. The elevating cylinders shall be provided with pilot-operated check valves to prevent movement of the ladder in case of a loss of hydraulic pressure. The elevating cylinders shall be able to raise and lower the aerial ladder to any angle from -8 degrees to +76 degrees.

The elevation system shall be designed following the current edition of NFPA 1901. The elevation cylinders shall incorporate cushions on the upper limit of travel. The elevation cylinders shall also serve as a locking device to hold the aerial in the stored position for road travel.

Rotation Mechanism

The aerial shall be supplied with a powered rotation system as outlined in the current edition of NFPA 1901. This system shall provide continuous rotation under all rated conditions and shall be supplied with a brake to prevent unintentional rotation.

Rotation shall be accomplished by a high-torque hydraulic motor driven through a spring-engaged, hydraulically released, multiple-disc brake into a planetary gear box. The gear box shall have a minimum continuous torque rating of 60,000 in. lbs. and a minimum intermittent torque rating of 120,000 in. lbs. The turntable bearing, ring gear teeth, spur gear, planetary gear box, and output shaft shall have a minimum safety factor of 2.5 to 1.

Hydraulic Swivel

A hydraulic swivel shall be installed to provide hydraulic fluid transfer to the aerial ladder cylinders, electrical power to the aerial ladder, and water delivery to the pre-plumbed waterway while permitting continuous 360-degree rotation. The swivel shall be environmentally sealed to prevent contamination of the hydraulic fluid. The swivel shall include a 4" passage for waterflow. The number of hydraulic ports and electrical circuits shall be dependent on the type of aerial control system as noted below:

Control System	Hydraulic Ports	Electrical Circuits
Direct hydraulic controls	8	24
Advanced Aerial Control System	5	28
Advanced Aerial Control System - Deluxe	5	36

Aerial Ladder Control Station

An aerial ladder control station shall be supplied as outlined in the current edition of NFPA 1901. The control station shall be located on the left side of the aerial turntable. The apparatus shall be supplied with labels to warn of electrocution hazard. The control console shall provide a service access door on the front and side of the console to access hydraulic and electrical connections. The electrical panel shall be contained in a junction box with labeled wires. The control console shall be angled, labeled, and supplied with lights for night operation.

Console Cover

A diamond plate contoured hinged cover shall be supplied to protect the console from the elements. The cover shall latch in the stored position and swing away from the console so as not to interfere with sight of the aerial device.

Aerial Ladder Control Levers

The control levers shall be arranged as outlined in the current edition of NFPA 1901. The first lever from the left shall be the extension control (forward for extend and back for retract). The second lever shall be the rotation control (forward for clockwise and back for counterclockwise). The third handle shall be the elevation control (forward for down and back for up). The aerial shall employ direct hydraulic controls for precise control and dependable service with minimal electrical functions. A ring around the control levers shall be provided to prevent unintentional movement.

Rung Alignment Indicator

A light on the control console shall indicate when the ladder rungs are aligned for climbing.

Aerial Ladder Alignment Indicator

A reflective arrow mounted to the body and the turntable shall indicate when the aerial ladder is aligned with the forward aerial ladder support.

Load Indication System

A lighted elevation/safe-load indicator diagram shall be located on the lower left side of the base section to indicate safe load capacity at any angle of elevation. The safe load indicator shall be 15" x 15" in size and shall clearly communicate the aerial ladder capacity in any one of the following conditions: tip load, tip load with water flowing, and distributed load at full extension. The chart shall identify capacity using graphic characters to indicate each 250 lb. increment. The chart shall be equipped with lighting and warn of electrocution hazards from power lines and lightning.

An extension indicator shall be located on the handrails of the base section to indicate feet of extension. The control pedestal shall also come equipped with a hydraulic oil pressure gauge and lights for night operation.

Aerial Waterway

A pre-piped waterway shall be supplied as outlined in the current edition of NFPA 1901. The waterway shall telescope to the end of the fly section. A waterway of 4" internal diameter shall pass through the turntable and a swivel joint to connect to the tubular aerial waterway. The tubular waterway shall run under the aerial ladder. The waterway tubes shall have the following sizes:

Base Section: 4-1/2" OD
Mid-Section: 4" OD
3rd Section: 3-1/2" OD

The base section shall be constructed of regular aluminum and the second and third sections of the waterway shall be constructed of hard coat anodized aluminum and shall be telescopic with the aerial ladder through sealed slip joints. The slip joints shall be designed with grease zerk fittings to facilitate lubrication.

A 1-1/2" drain valve shall be installed and operated from the rear of the apparatus to drain the waterway.

The water system shall be capable of flowing 1,000 gpm at 100 psi nozzle pressure at full elevation and extension. The friction loss between the tip and below the swivel shall not exceed 100 psi while flowing 1,000 gpm as outlined in NFPA 1901.

Waterway Relief Valve

An automatic relief valve preset at 250 psi shall be installed in the aerial waterway to prevent over-pressurization of the waterway system. The relief valve shall be mounted in the lower portion of the waterway where it enters the aerial torque box frame and dumps under the apparatus.

Ladder Tip Steps

Two (2) folding steps shall be located near the ladder tip to provide a position for a firefighter using the ladder pipe/monitor as outlined in the current edition of NFPA 1901. The steps shall have a raised surface for traction

and cut outs for easy manual deployment. Each step shall have a minimum load rating of 500 lbs. and shall have a minimum step area of 35 sq. in.

ISO Compliance

The manufacturer shall operate a Quality Management System meeting the requirements of ISO 9001:2000.

The International Organization for Standardization (ISO) is a recognized world leader in establishing and maintaining stringent manufacturing standards and values. The manufacturer's certificate of compliance affirms that these principles form the basis for a quality system that unswervingly controls design, manufacture, installation, and service.

The manufacturer's quality systems shall consist of, but not be limited to, all written quality procedures (aka QOP) and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts products or processes. In addition, all apparatus assembly processes shall be documented for traceability and reference. The manufacturer shall also engage the services of a certified third party for testing purposes where required.

If the manufacturer operates more than one manufacturing facility each facility must be ISO certified.

By virtue of its ISO compliance the manufacturer shall provide an apparatus that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.

A copy of the manufacturer's certificate of ISO compliance for each manufacturing facility shall be provided with the proposal.

Aerial Hydraulic Oil Level Gauge

A hydraulic oil level gauge shall be supplied for easy fluid level verification. The three-light system shall indicate full oil level with a green light, acceptable oil level with yellow light, and low oil level with a red light. The display shall be located on the pump operator's panel.

Aerial Control System

The aerial hydraulic system shall be equipped with a microprocessor based electric over hydraulic control system. The system shall include electronic ramping to provide smooth acceleration and deceleration of aerial functions during sudden movements of the operator control levers. The ladder shall utilize three (3) combination proportional control valves for smooth aerial device movements. The hydraulic system valve body shall be located in the turntable console.

The control system shall have manual overrides in the event of a system failure. The overrides shall be located directly on the electric / hydraulic control valve within easy reach of the turntable operator. The manual system shall be organized to match the base controllers with the functions clearly labeled.

The switch modules on the console shall be CAN based for reliable operation.

An emergency stop switch shall be provided on the console that de-energizes the PTO in the event the aerial must be stopped immediately.

Joystick Control Levers

The control system shall incorporate three (3) joysticks at the aerial control console. The joysticks shall be single axis, one (1) to extend / retract, one (1) for rotating left / right and one (1) to elevate / lower the aerial in accordance with NFPA 1901. A ring shall be provided around each joystick to prevent unintentional movement as outlined in NFPA 19.17.6.2.

Aerial Speed Switch

The control system shall be provided with a "creep speed" switch for precise aerial movement. When activated, the aerial shall operate at a slow speed and the chassis engine will remain at idle speed.

Variable Ramping

A three (3) position switch shall be provided to select system ramping (ladder movement when initiating or ceasing movement of a control lever). The switch shall allow selection of normal, firm or soft ramping based on operator preference.

Display

A CAN based multifunction display shall be installed on the turntable control console. The display shall be a 3.2" backlit LCD to provide daylight readability and be IP67 rated. The display shall contain four (4) integrated navigation buttons and communicate via J1939 protocol.

The display shall provide the following information:

- Hydraulic system pressure
- Aerial hours
- Waterway flow
- Total waterway flow (with reset button)

The display shall be capable of showing system units in standard or metric values.

The background of the display shall change color based on status. Colors shall be blue/green for normal, yellow for caution and red for warning.

With short jacking feature the display shall provide the following additional information:

- Rotation limited indicator
- Aerial angle in degrees
- Aerial tip load represented in 250 lb increments via simple firefighter icons
- System limit notifications (Example: "Right Rotation Limited – Short Jack")

Stow Switch

The control system shall also include a switch to deploy and stow the waterway monitor (if equipped with a pre-piped waterway).

Cradle Alignment Light

A green light shall be provided at the turntable control console to indicate when the aerial is aligned for bedding.

Short Jacking System

The stabilizers shall be capable of multi-range short jack operation. The short jacking operation will allow for rapid set-up in congested/restricted areas. When short jacking is employed, the aerial device shall be capable of operating within a 200 degree side envelope which includes the capacity to go 10 degrees past center both front and rear. The ability to set-up in congested areas is further enhanced in that mechanical safety pins are not required thus permitting the short side stabilizer to be deployed without having to be extended.

The system electronics shall be configured so as to prevent rotation to the short jack side and shall utilize proximity switches located outboard of the rotation gear. The system electronics shall also be configured so as to eliminate the requirement for a momentary switch to be engaged for operation in short jack mode. This function allows for normal aerial control operation during short jack deployment.

The system shall also have the capability to be double short jacked. This is particularly applicable for maintenance/servicing situations which may occur in extremely tight areas. This configuration shall allow the cab to be tilted without having to extend the outriggers. The ladder shall be capable of being rotated 20 degrees in this mode (10 degrees either side of center). When double short jacked the aerial shall also be capable of operating in a 20-degree range off the rear as well. Rotation to the rear double short jack operation zone shall be permitted only by first raising the fully retracted ladder to maximum elevation to prevent an un-stable condition.

Messages shall be provided in the aerial control system display located at turntable console to indicate when aerial movement is limited due to the outriggers being short jacked.

Monitor Controls - Additional

Controls shall be provided on the pump operator's panel for the aerial monitor.

1000 GPM Monitor

The aerial ladder shall be equipped with an TFT Typhoon RC electrically controlled monitor with a powder coated silver finish. The monitor shall be equipped with a Master Stream electrically controlled automatic nozzle capable of discharging 250-1,000 gpm at 100 psi nozzle pressure. This waterflow capability shall be available at any extension, elevation, or position without any restrictions while flowing 1,000 gpm. A minimum stability factor of 1.5 to 1 shall be maintained in this configuration.

The operational range of the electric monitor and nozzle shall be 155 degrees through the vertical plane (110 degrees upwards from a line perpendicular to the aerial ladder and 45 degrees downward), and 180 degrees through the horizontal plane (90 degrees to either side of the aerial ladder center line). The monitor shall be able to move in the horizontal and vertical axis simultaneously.

The monitor shall include an extended vertical travel range to allow operation up to 20 degrees above parallel to the ladder. This feature shall allow water to be directed upwards from the ladder tip. The ladder rung placement shall not be altered from the standard configuration for this feature.

The monitor relay box shall include solid state components and shall be coated to resist corrosion. The monitor shall have fully enclosed motors and gears with built-in manual override capability.

Control switches for horizontal movement, vertical movement and pattern selection shall be located at the control panel.

Monitor Tip Controls

In addition to the controls at the operator console, electric monitor directional and stream controls shall be installed in close proximity to the monitor on the ladder to allow operation by a firefighter on the ladder.

Shut-Off Valve

A TFT model VUM AKM112111D valve shall be provided at the base of the monitor. The valve body shall be constructed from cast aluminum with a pivoting cast stainless steel shut-off assembly. The valve shall allow the monitor to be shut off when using the 2.5" auxiliary discharge.

2.5" Valve

An auxiliary 2.5" discharge valve (with 4.75" extension pipe) shall be mounted on the VUM at the tip of the ladder.

Pinned Waterway Upgrade

A remote-controlled monitor/nozzle assembly shall be attached to a ladder fly section through C-channel slide pads which shall allow the monitor/nozzle assembly to be positioned at the tip of a section for maximum master stream reach or at the tip of the next section down for unobstructed rescue capabilities. The monitor/ nozzle assembly shall be pinned at either operating location with a single stainless steel ”T” handle locking ball pin. A monitor control station shall be attached to the sliding monitor/nozzle assembly and shall move with it.

The turntable monitor controls shall be connected to the sliding monitor system using an electronic multiplexing system that sends all monitor control signals over a shielded pair of wires through a spring retract electric cable reel. The collector rings in the cable reel shall be specifically designed for accurate transmission of electronic signals.

A gel-cell rechargeable battery shall be located on the sliding monitor assembly. A dedicated ground wire and 12VDC positive charging wire shall be routed from the turntable control station through the electric cable reel to the monitor battery. The charging wire shall be directly connected to the chassis 12VDC battery system through a 20 amp auto reset circuit breaker.

The moveable monitor/nozzle assembly shall be capable of flowing from 300 gpm to 1000 gpm while maintaining a constant 80-100 psi nozzle pressure for maximum stream projection.

Nozzle Guard

The waterway mounted nozzle shall be protected with a guard constructed of tubing to prevent damage to the nozzle during aerial operations.

Nozzle sweep will be 45 degrees to either side of the aerial ladder centerline to prevent interference with the nozzle guard.

Waterway Inlet

One (1) 4” inlet shall be provided at the rear of the apparatus and shall be connected to the vertical pedestal waterway piping to supply water to the aerial waterway from an outside source. All fabricated piping shall be constructed of a minimum of Schedule 10 stainless steel piping to help prevent corrosion. The threads shall be NST. A long handle chrome plated 4” NST cap shall be installed on the inlet.

Waterway Relief

The aerial waterway pressure relief valve shall be a Trident AirMax with dual valves in place of standard. The system shall include a control panel with adjustment knob and pressure gauge.

Waterway Pressure Gauge

Innovative Controls TC Series 2.5" (63MM) waterway inlet pressure gauge (0-400) shall be provided. Each gauge shall have a glass-filled nylon case, a clear scratch-resistant lens, and a highly polished stainless-steel bezel.

The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels.

The gauge shall be fully-filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation, and ensure proper operation from –40°F to +160°F.

Each gauge shall exceed (NFPA 1901 16.12.3.7) ASME B40.100 Grade B requirements (3% 2% 3%) with an accuracy of +/- 1.5% full scale and include an internal thermal expansion bladder that allows the gauge fill to expand in high temperature environments.

The gauges shall also include a KEM-X Socket Saver diaphragm in the stem to eliminate freeze-up and contain a low temperature instrument oil that fills and protects the socket and bourdon tube.

The gauges shall display a range specified with enhanced black markings on a white dial.

LED Outrigger Lights (PR)

Two (2) Whelen M6V2RC Super LED red light heads with clear lens shall be provided. The rectangular lights shall include chrome flanges. The lights shall be surface mounted on the outrigger covers in compliance with current NFPA 1901. Warning and ground lights shall be activated with aerial master switch.

Ladder Base Lighting

Two (2) Whelen round 12 Super LED model PFBP12C floodlights with black housing and chrome rear cover shall be mounted one on each side at the bottom of the ladder base section. They shall be controlled from the turntable operating pedestal.

Ladder Climbing Lights

A Luma-Bar Pathfinder LED lighting system shall be provided to illuminate the climbing area inside both sides of each ladder section. The strip type lights shall be located above ladder rung level and directed toward the centerline of the ladder to reduce glare. The lights shall be mounted to a 1.25" x .5" x .125" extruded aluminum channel and wired to not be an obstruction during climbing. The lights shall be controlled with the ladder lights switch at the operator’s control console.

The LED lights shall be Red (base) / White (2nd) / Blue (fly).

Whelen Pioneer LED 12V Flood Light

A Whelen Pioneer Plus series 12V flood light model PFH1 LED light fixture(s) shall be provided on a Whelen model PH1LPED permanent mount non-telescoping base. The rectangular extruded light fixture with die cast end caps shall measure 8.35" wide by 4.25" high by 3" deep and have a white powder coat finish. The light fixture shall have eighteen (18) white Super-LEDs with molded vacuum metalized reflector that draws 6.5 amps and produces 8,875 usable lumens.

The light assembly shall be mounted at the tip of the aerial as specified. The base shall allow for 360-degree rotation of the light. A locking knob shall hold the pole at the desired angle. The light shall be provided with a switch at the lower console to control the light when the aerial power circuit is activated.

Location(s): left side tip, right side tip.

Axe Bracket

An axe bracket shall be provided on the aerial ladder. The bracket shall be Zico model# H-AB blade guard and PAC TRAC model# 1004 clamp for the handle. The bracket shall be designed to hold a 6 lb. axe and include a pick cover.

Location: left side fly section.

Pike Pole Mount

There shall be an aluminum tube mounted directly on the ladder for storage of a 6’ pike pole. The tube shall be located right side fly section.

Roof Ladder Bracket

A lift-out style roof ladder mounting bracket shall be installed on the outside of the ladder base section. The bracket shall be designed to hold a PRL-16 on the left side of base section.

Aerial Sign Plate

Two (2) 16” x 144” x 1/8” minimum thick smooth aluminum plates shall be provided. The plates shall have 1” lips top and bottom for rigidity. Each sign plate shall be bolted on either side of the base section, approximately at the midpoint. The plates shall be provided to display the department’s name or other information. The plates shall be painted Job Color as specified by the customer.

Aerial Sign Plate Bracket

Three (3) brackets shall be provided to mount a larger than standard aerial sign plate outside of the ladder base section. The bracket spaces the sign plate out approximately 5" to provide ample hand clearance between the sign plate and ladder handrail.

Third-Party Flow Test

A flow test shall be conducted to determine that the water system is capable of flowing 1,000 gpm at 100 psi nozzle pressure with the aerial device at full extension and elevation. When the aerial apparatus is equipped with a fire pump, the test shall be conducted using the onboard pump. Intake pressure for the onboard pump shall not exceed 20 psi.

In addition to the flow test, a hydrostatic test shall be done on the waterway system. The permanent water system, piping, and monitor shall be hydrostatically tested at the maximum operating pressure required to flow 1,000 gpm at 100 psi nozzle pressure at maximum elevation and extension.

These results shall be certified by an independent, third-party testing organization, per NFPA 16.13.1 through 16.13.1.3.

Aerial Certification

All certifications shall be performed by a certification organization that is accredited for inspection and testing systems on fire apparatus in accordance with ISO/IEC 17020.

The aerial ladder shall be tested in compliance with the current editions of NFPA 1901 and NFPA 1911. All critical structural components of the aerial shall include 100% nondestructive testing (NDT) before assembly and body mounting. All NDT testing shall be performed by Level II or Level III technicians who have been certified in the test methods used in accordance with ANSI/ASNT CP-189.

Welds for structural load-supporting elements shall be performed by certified welders under the guidelines of AWS. Each aluminum ladder section shall be subjected to 100% NDT visual weld inspection followed by Liquid Penetrant NDT inspection as required to qualify suspected weld defect indications. Each steel ladder section shall be subjected to 100% Magnetic Particle NDT weld inspection to assure the structural integrity of the welds.

A 100% Magnetic Particle weld inspection shall be conducted on the torque box, aerial support structure, outriggers, outrigger support structure and all other structural ferrous aerial components. This test shall be performed to assure the structural integrity of the weldment.

After the aerial is assembled and installed on the vehicle, an operational inspection shall be made, and the aerial shall be tested to comply with the applicable standards in the current editions of NFPA 1901 and NFPA 1911.

In addition to the above tests, the aerial shall successfully complete the following operational tests:

1) The completed apparatus shall be placed on a firm, level surface with the aerial stabilizers extended and down. The aerial shall lift a test weight equal to the rated tip load capacity, as specified herein, with the aerial at full extension, 0 degrees elevation, and rotated 90 degrees to either side of the truck chassis. The test weight shall be lifted from 0 degrees to 15-20 degrees. The test weight shall be suspended from a position equal to the position of the outermost rung of the fly section or the center of the platform when so equipped. The aerial shall lift the test weight smoothly and evenly with no twisting or jerking. This test shall be performed at the normal hydraulic system relief valve setting. No temporary adjustments to the relief valve shall be allowed.

2) The completed apparatus shall be placed on a firm, level surface with the aerial ladder stabilizers extended and down. A test weight equal to 1.5 times the aerial's rated tip load capacity, shall be suspended from a position equal to the position of the outermost rung of the fly section (or center of the platform when so equipped), with the aerial in the straight-ahead position. The aerial shall then be rotated a full 360 degrees around the vehicle with the aerial at full extension and at 0 degrees elevation (or high enough to clear vehicle-mounted equipment). The aerial and vehicle shall show no signs of instability. This test shall be performed with no water in the tank, or hose, ladders, or removable equipment that would function as a counterbalance in order to simulate a worst-case condition.

3) The completed apparatus shall be placed on a firm surface having a minimum 5 degrees side slope with the aerial stabilizers extended and down. A test weight equal to 1.5 times the aerial's rated tip load capacity, shall be suspended from a position equal to the position of the outermost rung of the fly section (or center of the platform when so equipped), with the aerial in the straight-ahead position. The aerial shall then be rotated 90 degrees to the downhill side with the aerial at full extension, 0 degrees elevation (or high enough to clear vehicle-mounted equipment). The aerial and vehicle shall show no signs of instability, and all of the stabilizers shall remain firmly on the ground. This test shall be performed with no water in the tank, or hose, ladders, or removable equipment that would function as a counterbalance in order to simulate a worst-case condition.

4) The completed apparatus shall be placed on a firm, level surface with the aerial stabilizers extended and down. A test weight equal to 2.0 times the aerial's rated tip load capacity, shall be suspended from a position equal to the position of the outermost rung of the fly section (or center of the platform when so equipped), with the aerial in the straight-ahead position at full extension and at 8 degrees elevation (or high enough to clear vehicle-mounted equipment). After ten (10) minutes, the weight shall be removed, and the aerial shall be inspected for any abnormal twist or deflection.

5) The completed apparatus shall be placed on a firm, level surface with the aerial stabilizers extended and down. The aerial will be positioned at full extension at 0 degrees elevation at some position out of the travel rest and off the side or rear of the truck. For units without a pre-piped waterway to the tip, a test weight of 220# shall be applied horizontally and perpendicular to the tip of the aerial at the location of the outermost rung. The rotation brake shall not release, nor shall the aerial's deflection exceed the manufacturer's accepted tolerances. For aerials with pre-piped waterways, a test weight of 350# will be applied at the location of the water nozzle.

Upon satisfactory completion of all inspections and tests, an independent third-party inspection firm shall submit a certificate indicating that all specified standards have been met.

Elbow 30 degree 2.5"FNST x 2.5"MNST [Qty: 4]
This unit shall be supplied with one (4) elbow 30-degree swivel 2.5" FNST x 2.5" MNST.

Alco-Lite Roof Ladder [Qty: 2]
An Alco-Lite PRL-16, 16' aluminum roof ladder shall be provided. A pair of folding 3/4" minimum steel roof hooks shall be attached to one end of the ladder, and a pair of steel spiked feet on the other end. The ladder shall meet or exceed the requirements of the current edition of NFPA 1931.

Alco-Lite Extension Ladder
An Alco-Lite PEL-28, 28' aluminum two-section extension ladder shall be provided.

Alco-Lite 3-Section Extension Ladder
One (1) Alco-Lite PEL3-35, 35' aluminum 3-section extension ladder shall be provided. The fly section shall be operated by a cable and shall automatically extend as the center section is raised. The ladder shall meet or exceed the requirements of the current edition of NFPA 1931.

Alco-Lite Folding Attic Ladder
This unit shall be supplied with one (1) Alco-Lite FL-10, 10' 6" long aluminum folding attic ladder with safety shoes.

A-Frame Ladder
One (1) Wing Enterprises Little Giant model 17 Defender aluminum A-frame ladder shall be supplied. The ladder shall be equipped with a heavy gauge steel locking device and ladder shoes for extra safety. It shall be capable of being used either as a 9' to 15' variable-length straight ladder or as an adjustable step ladder with the ability to be erected on stairs or other offset horizontal surfaces.

DOT Required Drive Away Kit
Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.

Painted Pump/Pre-Connect Module(s)
All applicable pump/pre-connect application modules are to have a job color finish. Includes upper and lower pump modules, crosswalk module and/or speedlay/pre-connect module (as applicable).

Paint Custom Cab
The apparatus cab shall be painted Sikkens FLNA 3225 SIKKENS PUBLISHED RED. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. The contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The aluminum cab exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces. Cab doors and any hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on cab, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, handrails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, handrails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20-degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

Paint Body Large

The apparatus body shall be painted Sikkens FLNA 3225 SIKKENS PUBLISHED RED. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. The contractor shall, upon request, provide evidence that the manufacturing facility complies with State EPA rules and regulations.

The aluminum body exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces of the body. Any vertically or horizontally hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on body, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, handrails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, handrails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20-degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

Paint Wheels

The exterior outer chassis wheels shall be painted Job Color. The paint shall be of the highest quality finish for low maintenance, long life, and attractive appearance. The finish shall consist of a corrosion-resistant primer, urethane high build primer, and high-performance durable color coat.

The paint process shall meet or exceed current State regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. The manufacturer shall, upon request, provide evidence that the manufacturing facility complies with State EPA rules and regulations.

Paint process shall feature Akzo-Nobel's high solid LV products and be performed in the following steps:

- Corrosion Prevention - all raw material shall be pre-treated with the Weather Jacket Corrosion Prevention system to provide superior corrosion resistance and excellent adhesion of the topcoat.
- Akzo-Nobel Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.

- Akzo-Nobel High Solid LV (Topcoat) - a lead-free, chromate-free high solid acrylic urethane topcoat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Akzo-Nobel High Solid LV (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Aerial Paint

The lift cylinders, extension cylinders and upper turntable steelwork (less turntable) shall be painted to match the primary job color.

Tip Paint

The tip of the aerial ladder shall be painted yellow to assist firefighters in locating the ladder tip. The last three rungs, uprights and beams from the tip shall be painted; including nozzle guard.

LINE-X: Cab Interior Paint

The interior of the cab shall have LINE-X finish. Cab door panels, steps and step wells are not included in this package.

Cab interior package includes all exposed sheet metal surfaces (smooth or diamond plate) and extrusions including dash, seat risers and riser doors (if applicable) and cabinets (if applicable). Specific areas like those covered by door hinges, door striker, etc. shall NOT have LINE-X finish to meet tight tolerance and for better fit. These areas shall be covered in a similar-looking paint finish to prevent corrosion.

Cab Interior Line-X Color

The color of the Line-X applied to the cab interior shall be black.

LETTERING

Scotchlite Letter [Qty: 40]

Scotchlite letters up to 12" tall shall be applied.
The exact size, color and location of the letters shall be as specified by the customer.

Scotchlite Letter [Qty: 8]

Scotchlite letters taller than 12" shall be applied.
The exact size, color and location of the letters shall be as specified by the customer.

Sign Gold Letter [Qty: 60]

Sign Gold letters up to 6" tall shall be applied.
The exact size and location of the letters shall be as specified by the customer.

Lettering Shade and/or Outline [Qty: 108]

Existing letters shall be shaded and/or outlined as specified by the customer to provide a contrast.

Cab and Body Striping

A single Scotchlite stripe, up to 6 inches in width shall be installed on the cab and body. The stripe shall have a hockey style, Z or S style or any other customer specific design style.

The stripe shall be NFPA compliant, and the size, color and location shall be as specified by the customer.

An additional Scotchlite stripe, up to 3 inches in width shall be installed on the cab and body.

The stripe shall be NFPA compliant, and the design, size, color, and location shall be as specified by the customer.

Rear Body Scotchlite Striping

Printed chevron style Scotchlite striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Red/Lemon Yellow alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels, doors and inboard/outboard of the beavertails if applicable.

Front Bumper Scotchlite Striping

Chevron style printed Scotchlite striping shall be provided on the front bumper of the apparatus. The stripes shall consist of 6" Red/Lemon Yellow alternating stripes in an "A" pattern.

Reflective Tape on Stabilizers

The two aerial ladder stabilizers which protrude beyond the side of the body shall be striped with alternating color reflective printed sheet. The stripes shall run at a 45-degree angle sloping down and away from the center, forming an "A" shape when viewed from the front or rear of the unit. The reflective material shall meet NFPA 1901 requirements.

Stripe colors to be Red/Lemon Yellow.

Designated Standing / Walking Area Indication

A 1" wide yellow perimeter marking consisting of individual Reflexite diamonds shall be applied to indicate the outside edge of designated standing and walking areas above 48" from the ground in compliance with 2016 NFPA 1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement.

Graphics Drawing

A graphics drawing shall be provided for the apparatus. The drawing shall include striping, lettering, and logos meeting NFPA guidelines. The drawing shall be presented for review and approval by the buyer prior to application of the graphics.

Warranties:

Each proposer shall submit copies of all warranties specified upon request or upon delivery of Fire Apparatus.
The purchaser shall receive a General One (1) Year or 24,000 Miles limited warranty.

Aerial Ladder Structural Warranty

The purchaser shall receive an Aerial Ladder Structure Twenty (20) Years or 100,000 Miles limited warranty.

Body Structural (Aluminum) Warranty

The purchaser shall receive a Body Structure (Aluminum) Ten (10) Years or 100,000 Miles limited warranty.

Plumbing and Piping (Stainless Steel) Warranty

The purchaser shall receive a Plumbing and Piping (Stainless Steel) Ten (10) Years or 100,000 Miles limited warranty.

Meritor Front Axle Warranty

A warranty shall be provided for the front axle by Meritor Automotive. The warranty period shall be as follows based on axle type:

- FL-941, FL-943 and MFS up to 21,500: 5-year / unlimited miles parts and labor
- MFS rated at 22,800: 2-year / 200,000 miles parts and labor
- Front drive axle: 2-year / unlimited miles parts and labor

Meritor Rear Axle Warranty

A 5-year/unlimited miles, 5-year parts and 5-year labor rear drive single or rear drive tandem axle warranty shall be provided by Meritor Automotive.

Custom Chassis Warranty

The purchaser shall receive a Custom Chassis One (1) Year or 18,000 Miles limited warranty.

Emissions Systems Warranty

The purchaser shall receive a Regulated Emissions Systems Five (5) Years or 100,000 Miles limited warranty.

Electrical Warranty

The purchaser shall receive an Electrical One (1) Year or 18,000 Miles limited warranty.

Cab Structural Warranty

The purchaser shall receive a Cab Structure Ten (10) Years or 100,000 Miles limited warranty.

Paint and Finish Warranty

Purchaser shall receive a Paint and Finish Ten (10) Years limited warranty.

Frame Rail Corrosion Warranty

The purchaser shall receive a Frame Rail Corrosion (Zinc Plate and Powder Coat) Twenty-Five (25) Years or 150,000 miles limited warranty.

Frame Rail Warranty

The purchaser shall receive a Frame Rail Lifetime (50) Years or 250,000 Miles limited warranty.

Training

The manufacturer shall provide three (3) consecutive days of training covering vehicle maintenance and operational familiarization.

This training shall be provided by a full-time manufacturer employee trainer who specializes in aerial training.

Pump Panel Approval Drawing

A detailed large scale approval drawing of the pump panel(s) shall be provided. The drawing shall be provided on a purchased unit prior to the construction process.

Approval Drawings

A general arrangement drawing depicting the vehicles' appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views.

Vehicles requiring pump controls shall include a general arrangement view of the pump operator's position, scaled the same as the elevation views.

Approval Drawings - Dash Panel Layout

A detailed large scale approval drawing of the dash/console panel layout shall be provided. The drawing shall be provided on a purchased unit prior to the construction process.

Electronic Manuals

Two (2) copies of all operators, service, and parts manuals shall be supplied at the time of delivery in digital format. The electronic manuals shall include the following information:

- Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, aerial (if applicable), installed components, and auxiliary systems.
- Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems.
- Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.
- Instructions regarding the frequency and procedure for recommended maintenance.
- Maintenance instructions for the repair and replacement of installed components.
- Parts listing with descriptions and illustrations for identification.
- Warranty descriptions and coverage.

The electronic document shall incorporate a navigation page with electronic links to the operator's manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each copy shall include a table of contents with links to the specified documents or illustrations.

The electronic document must be formatted in such a manner as to allow not only the printing of the entire manual, but to also the cutting, pasting, or copying of individual documents to other electronic media, such as electronic mail, memos, and the like.

A find feature shall be included to allow for searches by text or by part number.

These electronic manuals shall be accessible from any computer operating system capable of supporting portable document format (PDF). Permanent copies of all pertinent data shall be kept on file at both the local dealership and at the manufacturer's location.

Fire Apparatus Safety Guide

Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest ways of dealing with these situations. This manual is NOT a substitute for fire apparatus operator and maintenance manuals or commercial chassis manufacturer's operator and maintenance manuals. Shall be submitted upon request or upon delivery of Fire Apparatus.

Certifications

The proposer shall supply the following certifications upon request:

The proposer shall furnish a third-party testing labs Certificate of Approval as required by NFPA 1901.

The proposer shall supply the required third-party structural certification of aerial:

Name of Engineer Certifying the Aerial: _____

State in which Registered: _____

Registration Number: _____

The proposer shall supply Engine Installation Certification

The proposer shall supply Certificate of ISO9001 certification

The proposer shall provide certificates for each compliant EVT technician employed directly by the proposing dealer.

"Official Price Proposal Form"

RFP 23-FIRE-75 Purchase of One (1) New/Unused 75' Aerial Ladder Fire Apparatus with Pump

Delivery of the Fire Apparatus shall be made in _____Calendar Day After Receipt of Order (ARO)

Item #	Qty.	Item Description	Make/Model/Brand Proposed	Unit Price
1	**1**	Purchase of One (1) New/Unused 75' Aerial Ladder Fire Apparatus with Pump		**$_____**
Pricing Written in Words:_____ **_____**				

Proposers must acknowledge all addenda. The proposer acknowledges receipt of the following **ADDENDA: (Enter the number assigned to each addendum on the following line)**

_____

Business Structure Form

SUBMITTED ON , _____ 202_

If Proposer is:

An Individual

By: _____ (SEAL)
(Firm's Name)

_____
(Authorized Representative Name)

_____
(Signature)

A Corporation

By: _____ (SEAL)
(Corporation's Name)

_____
(State of Incorporation)

_____
(Authorized Representative Name and Title)

_____
(Signature)

Attest: _____ (Corporate Seal)
(Secretary)

Date of qualification to do business is _____.

A Joint Venture or Partnership

By _____ (SEAL)
(Name)

_____
(Signature)

_____
(Address)

_____
(Address)

Business Structure Form (continued)

By _____ (SEAL)

_____
(Name)

_____
(Signature)

_____
(Address)

_____
(Address)

Name and title, address, phone number and email for receipt of official communications:

_____

_____

_____

_____

Non-Collusion Affidavit (Regarding LSA - R.S. 38:2224)
(To be submitted within 10 days from receipt of Notice of Award)

STATE OF LOUISIANA

PARISH OF TERREBONNE

PROJECT NAME: RFP 23-FIRE-75

LOCATION: 600 Wood Street Houma, LA 70360

AFFIDAVIT

Before me, the undersigned authority, duly commissioned and qualified within and for the State and Parish aforesaid, personally came and appeared _____representing _____ who, being by me first duly sworn deposed and said that he has read this affidavit and does hereby agree under oath to comply with all provisions herein as follows:

Section 2224 of Part II of Chapter 10 of Title 38 of the Louisiana Revised Statutes, as amended.

(1) That affiant employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project or in securing the public contract were in the regular course of their duties for affiant; and

(2) That no part of the Contract price received by affiant was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the Contract, other than the payment of their normal compensation to persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project were in the regular course of their duties for affiant.

THUS DONE AND SIGNED BEFORE ME, THE UNDERSIGNED Notary Public and subscribing witnesses on this ___ day of _____ , 20__, at _____, Louisiana.

_____ _____

WITNESS CONTRACTOR/VENDOR

_____ _____

WITNESS NOTARY PUBLIC

AFFIDAVIT

VERIFICATION OF CITIZENSHIP

(To be submitted within 10 days from receipt of Notice of Award)

BEFORE ME, the undersigned Notary Public, duly qualified in and for the Parish and State aforesaid, personally came and appeared:

_____

(name)

who after being first duly sworn, deposed and said that:

1. I am the _____ of _____.
(title) (company)

2. I swear that _____ is registered and participates in a status verification system
(company)

to verify that all employees in the state of Louisiana are legal citizens of the United States or are legal aliens.

3. I verify that if _____ is awarded the contract, it shall continue, during the
(company)

term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.

4. I acknowledge that _____shall require all subcontractors to
(company)

Submit to _____ ____a sworn affidavit verifying compliance with Paragraphs (2) and (3) of
(company)
the Affidavit.

Name:_____

Title:_____

Company:_____

Sworn to and subscribed before me at Houma, Louisiana,
on this _____ day of _____ 20_____.

_____

NOTARY PUBLIC

CERTIFICATION REGARDING LOBBYING

(To be submitted within 10 days from receipt of Notice of Award)

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of the fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor, _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

_____

Signature of Contractor's Authorized Official

_____

Name and Title of Contractor's Authorized Official

_____

Date

"B"

TERREBONNE PARISH CONSOLIDATED GOVERNMENT
MINIMUM INSURANCE REQUIREMENT FOR CONTRACTORS
(OTHER THAN NEW CONSTRUCTION OR RENOVATIONS)

Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property, which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees, or subcontractors. The cost of such insurance shall be included in the bid. TPCG (Terrebonne Parish Consolidated Government)

A. MINIMUM SCOPE OF INSURANCE

Coverage shall be at least as broad as:

1. Insurance Services Office form number GL0002 (Ed. 1/73) covering Comprehensive General Liability and Insurance Services Office form number GL0404 covering Broad Form Comprehensive General Liability; or Insurance Services Office Commercial General Liability coverage ("occurrence form CG001). "Claims Made" form is unacceptable. The "occurrence form" shall not have a "sunset clause".
2. Insurance Services Office form number CA0001 (Ed.1/78) covering Automobile Liability and endorsement CA0025 or CA0001 12 90. The policy shall provide coverage for any auto or owned, hired, and non-owned coverage. If an automobile is to be utilized in the execution of this contract, and the vendor/contractor does not own a vehicle, then proof of hired and non-owned coverage is sufficient.
3. Workers' Compensation insurance as required by the Labor Code of the State of Louisiana, including Employers Liability Insurance.

B. MINIMUM LIMITS OF INSURANCE

Contractor shall maintain limits no less than:

1. Commercial General Liability: $1,000,000 combined single limit per occurrence with a $2,000,000 general aggregate for bodily injury, personal injury and property damage and $25,000,000 products/completed operations aggregate. Required products/completed operations total limit can be met through Umbrella or Excess Liability insurance which sits excess of the General Liability policy.

2. Automobile Liability: $1,000,000 combined single limit per accident, for bodily injury and property damage.

3. Workers' Compensation and Employers Liability: Workers' Compensation limits as required by the Labor Code of the State of Louisiana and Employers Liability coverage. Exception: Employers Liability limit is to be $1,000,000 when work is to be over water and involves maritime exposure.

C. DEDUCTIBLES AND SELF-INSURED RETENTIONS

ANY DEDUCTIBLES OR SELF-INSURED RETENTIONS MUST BE DECLARED TO AND APPROVED BY TPCG. At the option of TPCG, either: The insurer shall reduce or eliminate such deductibles or self-insured retentions as respects TPCG, its officers,

officials, employees, and volunteers; or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

D. OTHER INSURANCE PROVISIONS

The policies are to contain, or be endorsed to contain, the following provisions.

1. General Liability and Automobile Liability Coverage

   a. TPCG, its officers, officials, employees, Boards and Commissions and volunteers are to be added as "additional insured" as respects liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor, premises owned, occupied, or used by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to TPCG, its officers, officials, employees, or volunteers.
   b. Any failure to comply with reporting provisions of the policy shall not affect coverage provided to TPCG, its officers, officials, employees, Boards and commissions or volunteers.
   c. The Contractor's insurance shall apply separately to each insured against whom a claim is made or suit is brought, except with respect to the limits of the insurer's liability.
   d. The insurer shall agree to waive all rights of subrogation against TPCG, its officers, officials, employees, and volunteers for losses arising from work performed by Contractor for TPCG.

2. Workers' Compensation and Employer's Liability Coverage

   The insurer shall agree to waive all rights of subrogation against TPCG, its officers, officials, employees, and volunteers for losses arising from work performed by the Contractor for TPCG. Terrebonne Parish Consolidated Government and Contractor mutually agree that it is their intention to recognize Terrebonne Parish Consolidated Government as the statutory employer of the Contractor's employees (whether direct employees or statutory employees of the contractor) when any of the contractor's employees are doing work and/or providing service under this agreement.

3. All Coverage's

   Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, cancelled thirty (30) days prior written notice by certified mail, return receipt requested, has been given to TPCG.

E. ACCEPTABILITY OF INSURERS

Insurance is to be placed with insures with A.M. BEST'S RATING OF NO LESS THAN A:VI. This requirement will be waived for workers' compensation coverage only for those contractors whose workers' compensation coverage is placed with companies who participate in the State of Louisiana Workers' Assigned Risk Pool or Louisiana Workers' Compensation Corporation.

F. VERIFICATION OF COVERAGE

The contractor shall furnish TPCG with certificates of insurance effecting coverage required. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. THE CERTIFICATES ARE TO BE RECEIVED AND APPROVED BY TPCG BEFORE WORK COMMENCES. TPCG reserves the right to require complete, certified copies of all required complete, certified copies of all required insurance policies, at any time.

G. SUBCONTRACTORS

The contractor shall include all subcontractors as insured under its policies or shall furnish separate certificates for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein.

INDEMNIFICATION AGREEMENT

(To be submitted within 10 days from receipt of Notice of Award)

The _____ agrees to defend, indemnify,
Contractor/Subcontractor/Lessee/Supplier

save and hold harmless the Parish of Terrebonne, all Parish Departments, Agencies, Boards and Commissions, its officers, agents, servants and employees, including volunteers, from and against any and all claims, demands, expense and liability arising out of injury or death to any person or the damage, loss or destruction of any property which may occur or in any way grow out of any act or omission of _____ its agents, servants and employees,
Contractor/Subcontractor/Lessee/Supplier

and any and all cost, expense and/or attorney fees incurred by TPCG, all Departments, Agencies, Boards, Commissions, its agents, representatives, and/or employees as a result of any such claim, demands, and/or causes of action arising out of the negligence of TPCG, all Department, Agencies, Boards, Commissions, its agents, representatives, and/or employees _____
Contractor, Subcontractor, Lessee, Supplier

agrees to investigate, handle, respond to, provide defense for and defend any such claim, demand, or suit at its sole expense related thereto, even if it (claims, etc.) is groundless, false or fraudulent.
.

Accepted by: _____

Company : _____

Signature: _____

Title: _____

Date Accepted: _____

Is Certificate of Insurance Attached? _____ Yes _____ No

Proposal No. RFP 23-FIRE-75 for Houma Fire Department
Parish Department

Purpose of Contract: Purchase of One (1) New/Unused 75' Aerial Ladder Fire Apparatus with Pump